

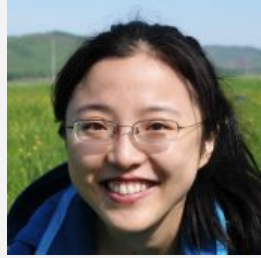
# The US Covid Atlas

Near Real-Time Exploration of the COVID-19 Pandemic

**March 10, 2021**



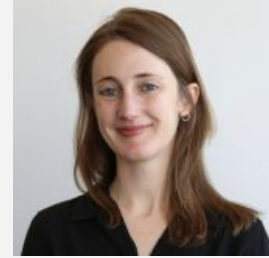
**Marynia Kolak, PhD**



**Qinyun Lin, PhD**



**Dylan Halpern, M.C.P.**



**Susan Paykin, M.P.P.**

 **theUSCovidAtlas.org**

# Overview

## Key Insights

Vaccination & Mobility Metrics

Uncovering Vulnerable Communities

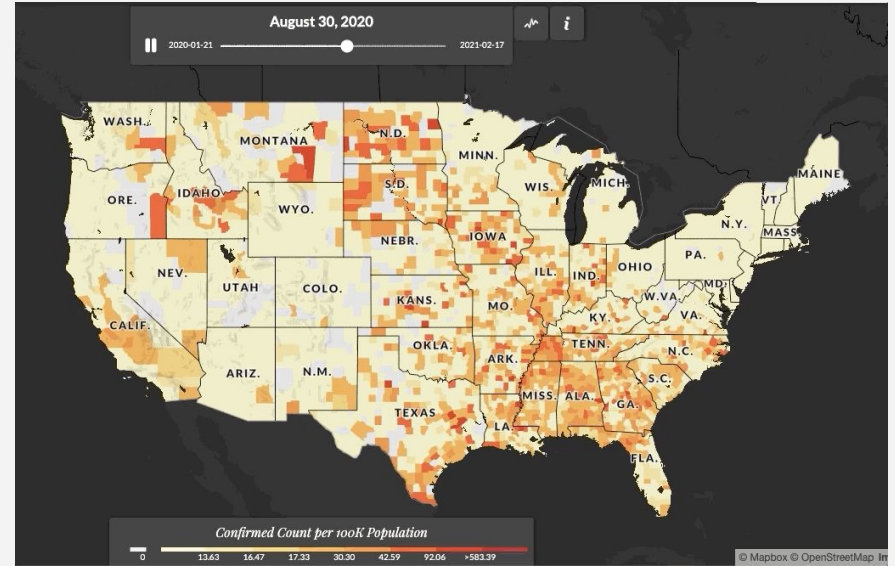
Identifying Hotspots

## Q&A

# Overview

# The US COVID Atlas

The Atlas is a data visualization tool that provides quick access to county-level COVID **estimates**, vaccination **rates**, and statistical **cluster detection**.



# Data

## COVID Health Outcomes, Testing, Vaccination

Confirmed Cases  
Confirmed Deaths  
Adjusted by Population  
Adjusted by Bed Available  
**Testing Positivity Rate**  
**Testing Capacity**  
**% Received First Dose**  
**% Received Second Dose**  
**Dose to be Administered per 100K population**

- 1P3A
- USAFacts
- New York Times
- John Hopkins U
- CDC

## COVID Pandemic Insights

Natural Breaks Classification  
Statistical Hotspots/Coldspots  
Severity Index  
7-Day Forecasted Deaths

- Center for Spatial Data Science, U of Chicago
- Dept of Statistics, Berkeley

## Health Systems Infrastructure

Staffed beds  
Staffed ICU beds  
Beds by County  
**Clinics and Hospitals (points)**

- COVIDCare Map: Definitive Healthcare, Healthcare Cost Report Information System (HCRIS), crowd-sourced updates
- HRSA Data Warehouse

## Social, Economic, & Environmental

Child Poverty Rate  
Income Ratio  
Median Household Income Over 65 Years %  
Uninsured Percentage  
Primary Care Rate  
Preventable Hospitalizations  
Black Residential Segregation  
Native American Reservations

- Census
- County Health Rankings

# Positioning the US Covid Atlas

Atlas: A Curated Collection of Maps (& Data)

vs.

Dashboard: At-A-Glance Overview, Report



Personalized, In-Depth Experience

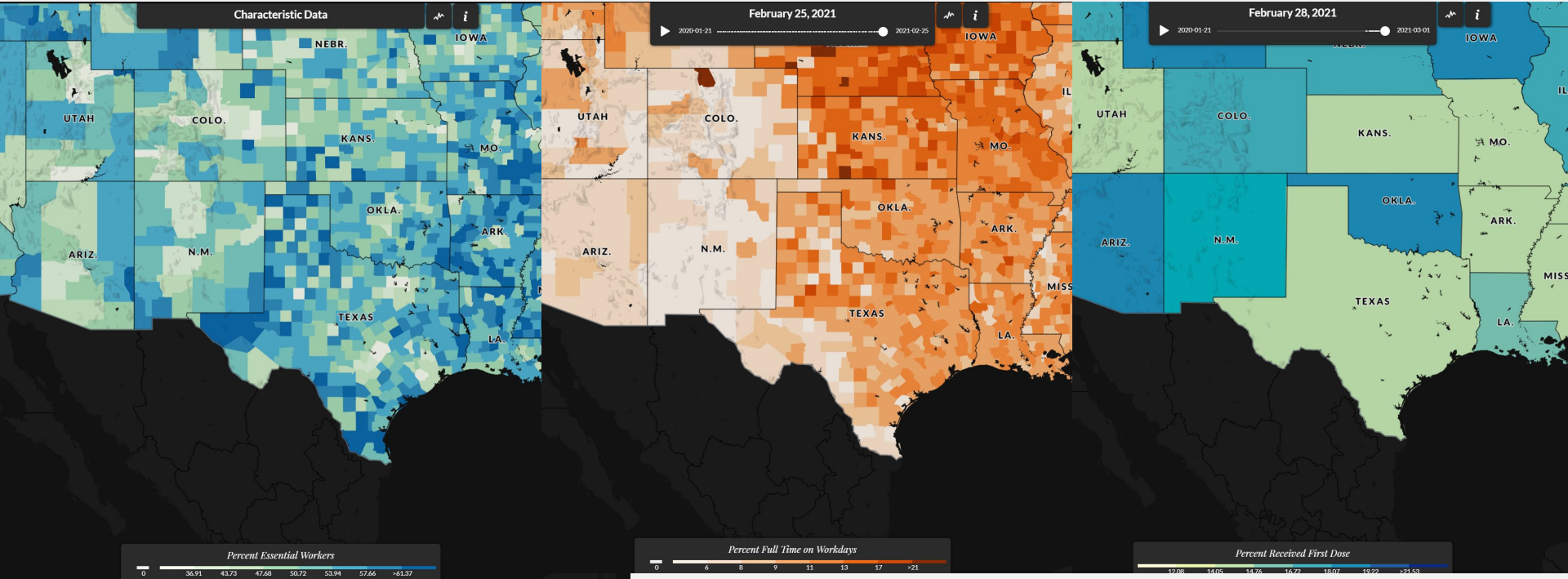
Considers Uncertainty & Multiple Perspectives in Design

Participatory, Engaged Design Approach



# Key Insights

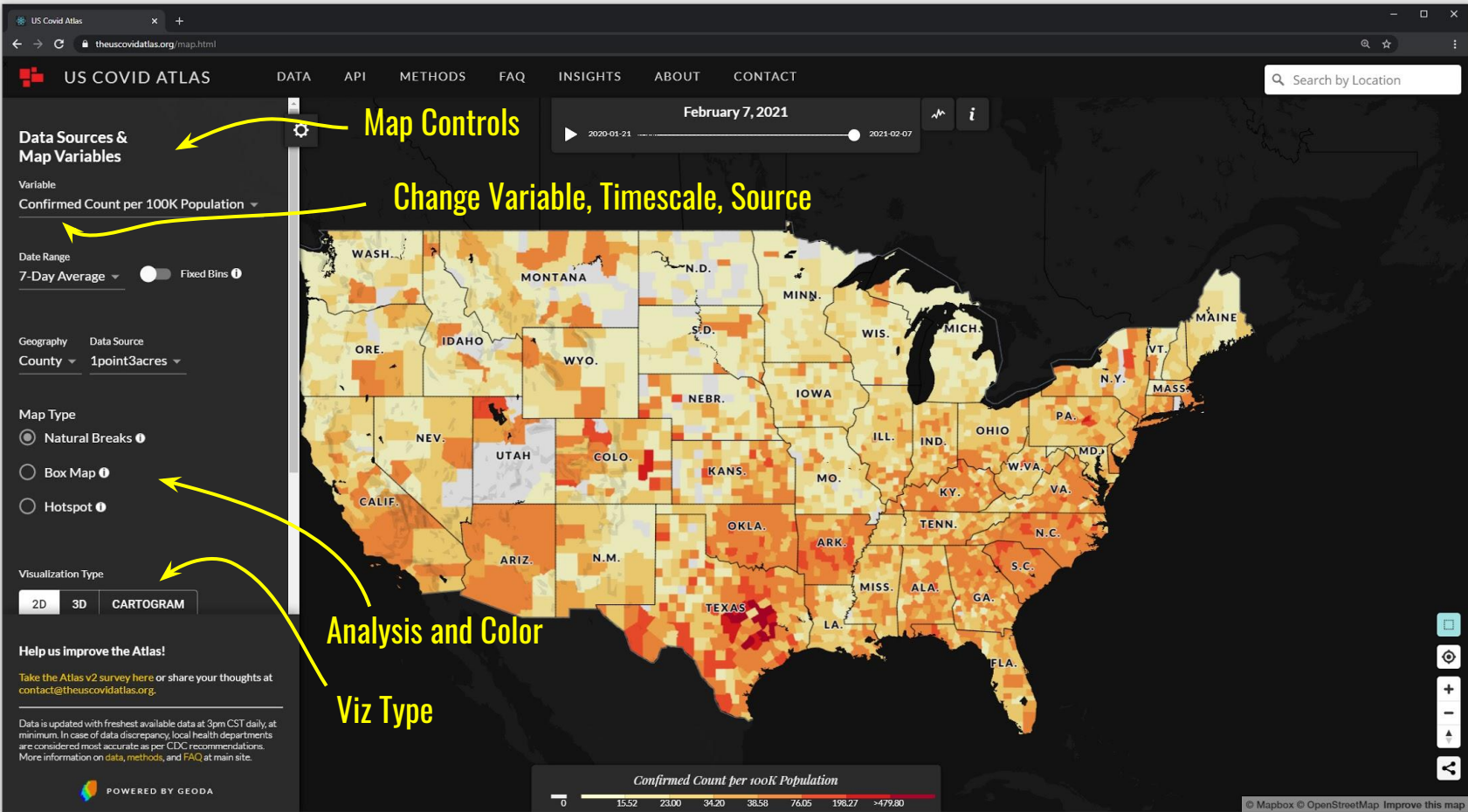
# Insight #1. Tracking an (in?)equitable recovery



**Percent of Essential Workers**  
(Source: US Census / ACS)

**Percent Full Time Workplace Mobility**  
(Source: Safegraph)

**State-Level Vaccination Data**  
(Source: CDC)



Map Controls

Change Variable, Timescale, Source

Analysis and Color

Viz Type

February 7, 2021



CASES

- Confirmed Count
- Confirmed Count per 100K Population
- Confirmed Count per Licensed Bed

DEATHS

- Death Count
- Death Count per 100K Population
- Death Count / Confirmed Count

TESTING

- 7 Day Testing Positivity Rate %
- 7 Day Testing Capacity per 100K Population

VACCINATION

- Percent Received First Dose
- Percent Received Second Dose
- Doses to be Administered per 100K Population

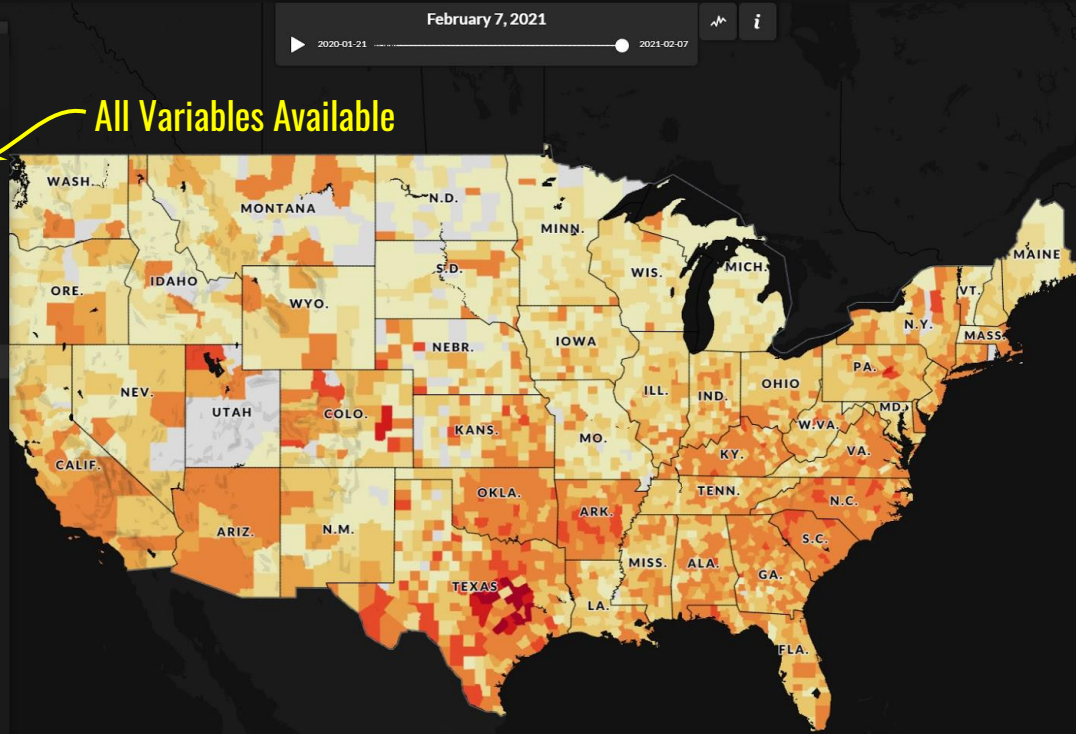
FORECASTING

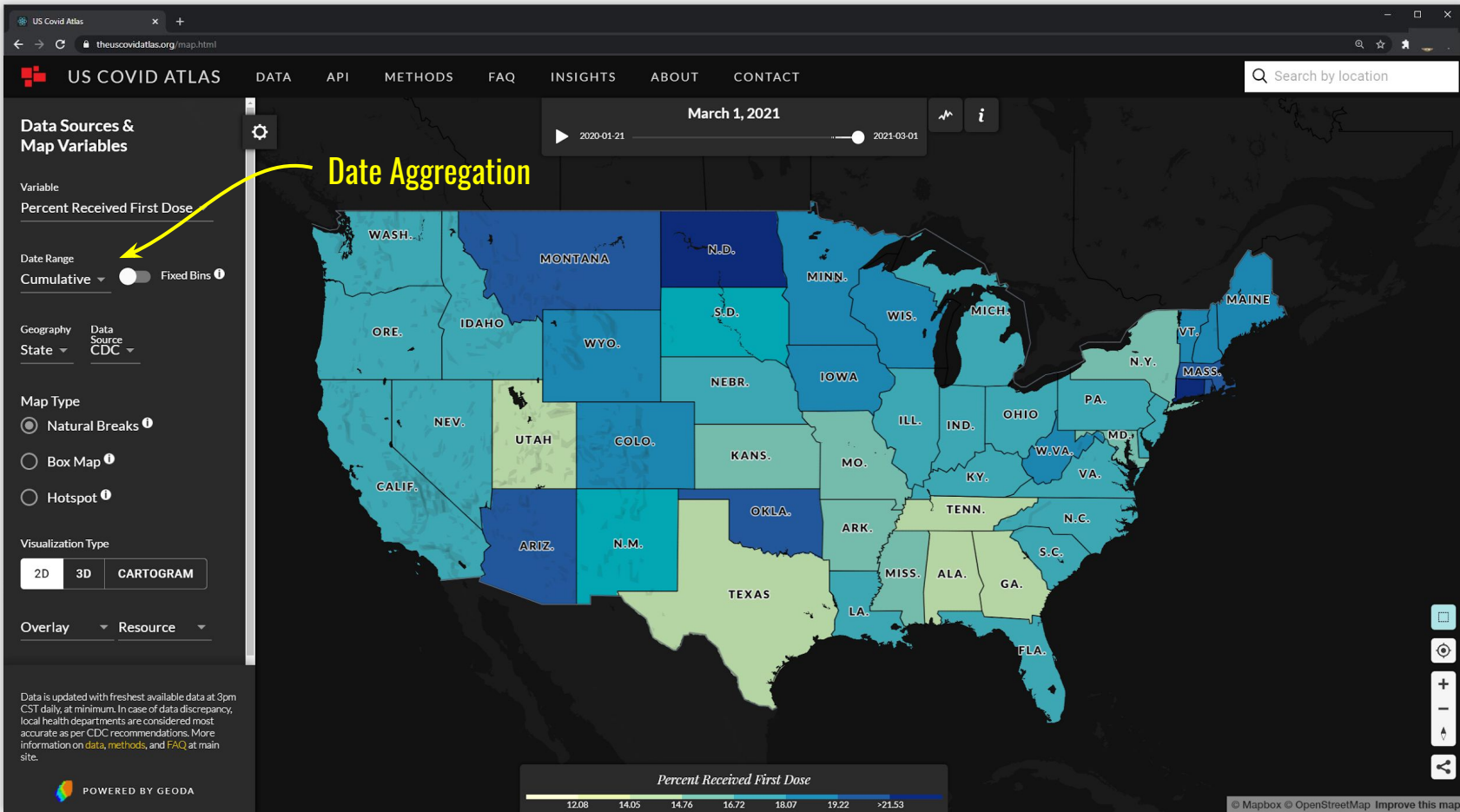
- Forecasting (5-Day Severity Index)

COMMUNITY HEALTH INFORMATION

- Uninsured %
- Over 65 Years %
- Life Expectancy

All Variables Available





### Data Sources & Map Variables

Variable: **Percent Received First Dose**

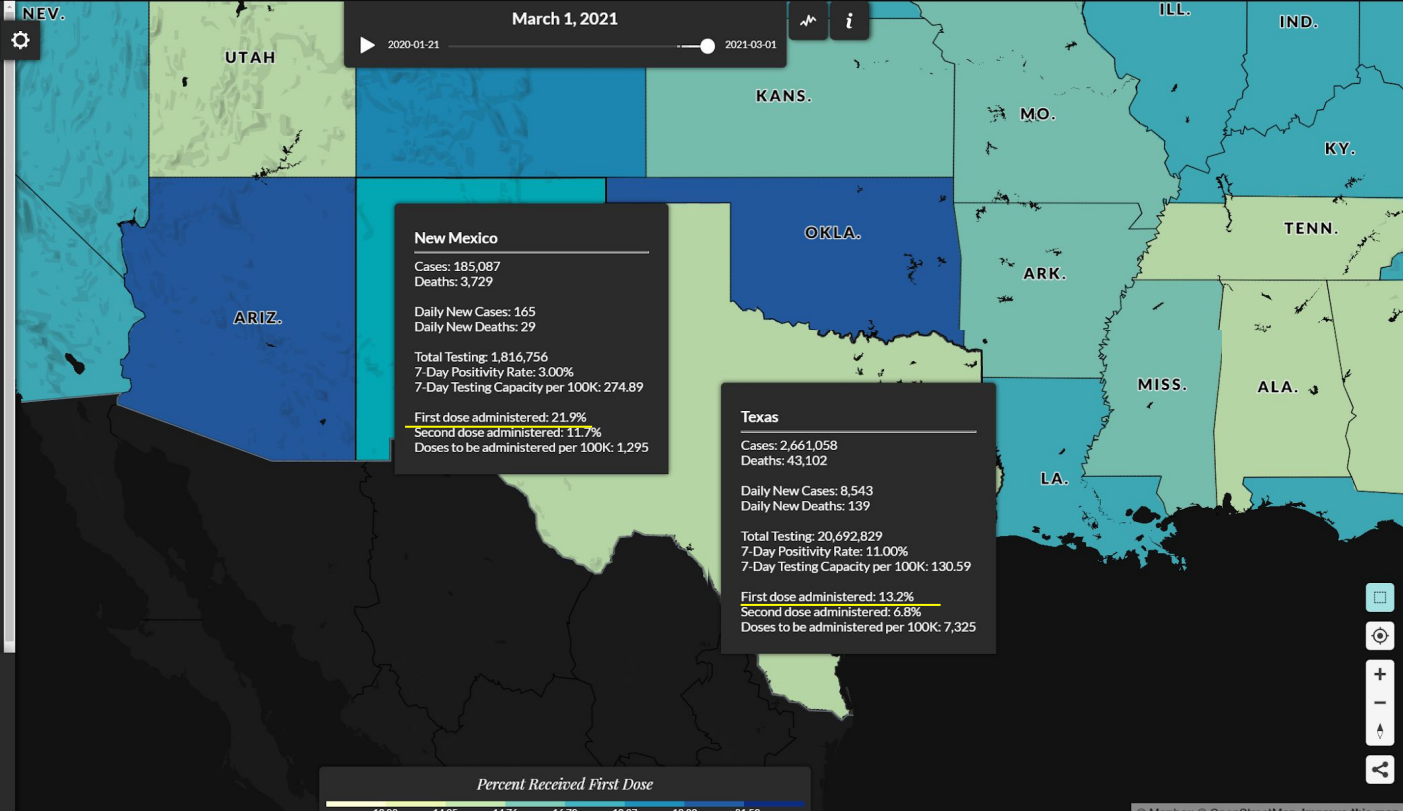
Date Range: **Cumulative** | Fixed Bins

Geography: **State** | Data Source: **CDC**

Map Type: **Natural Breaks** | Box Map | Hotspot

Visualization Type: **2D** | 3D | CARTOGRAM

Overlay: **Resource**



Data is updated with freshest available data at 3pm CST daily, at minimum. In case of data discrepancy, local health departments are considered most accurate as per CDC recommendations. More information on [data](#), [methods](#), and [FAQ](#) at main site.

POWERED BY GEODA



CASES

Confirmed Count

Confirmed Count per 100K Population

Confirmed Count per Licensed Bed

DEATHS

Death Count

Death Count per 100K Population

Death Count / Confirmed Count

TESTING

7 Day Testing Positivity Rate Percent

7 Day Testing Capacity per 100K Population

VACCINATION

Percent Received First Dose

Percent Received Second Dose

Doses to be Administered per 100K Population

FORECASTING

Forecasting (5-Day Severity Index)

COMMUNITY HEALTH INFORMATION

Uninsured Percent

Over 65 Years Percent

Life Expectancy

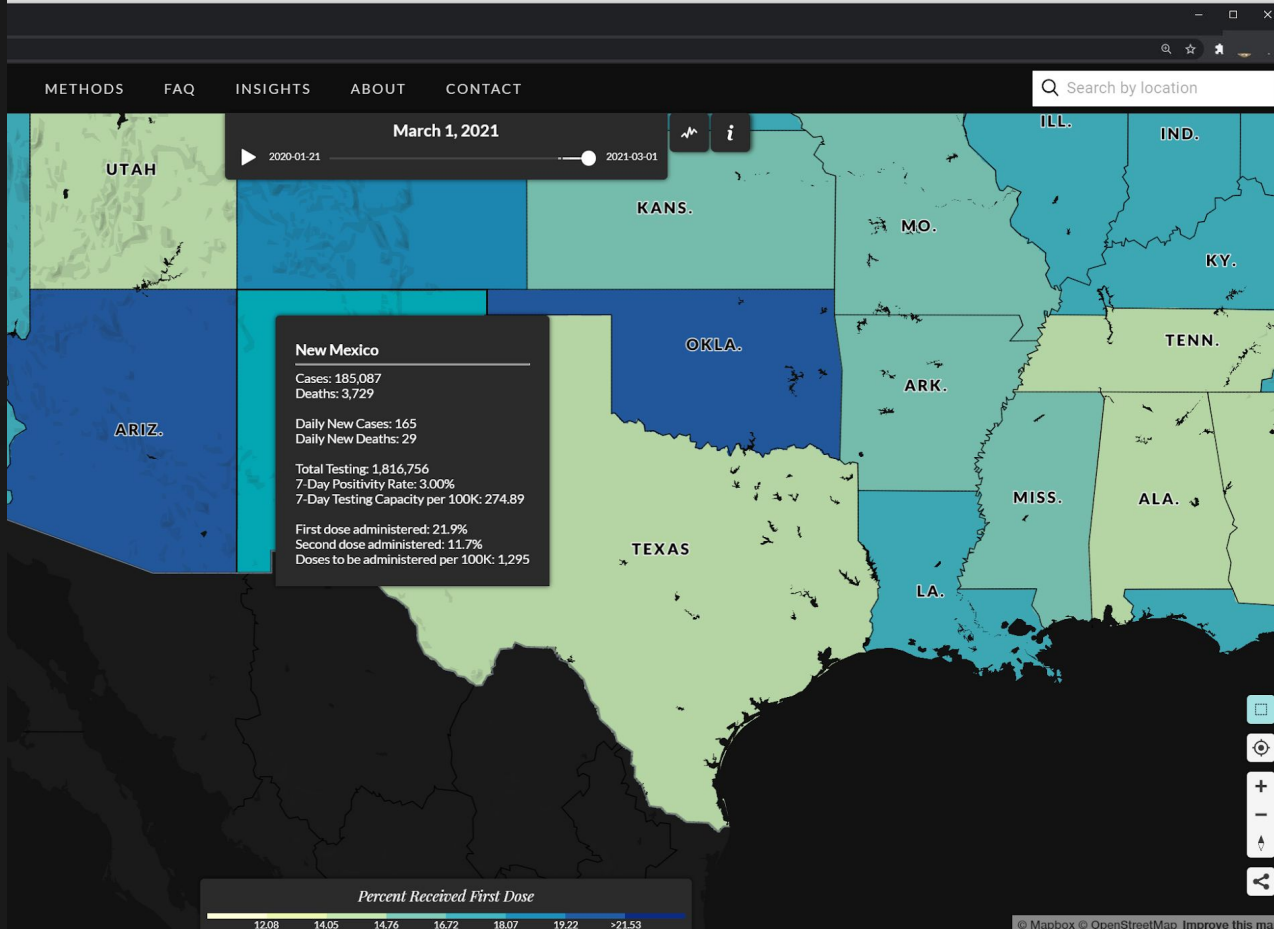
Percent Essential Workers

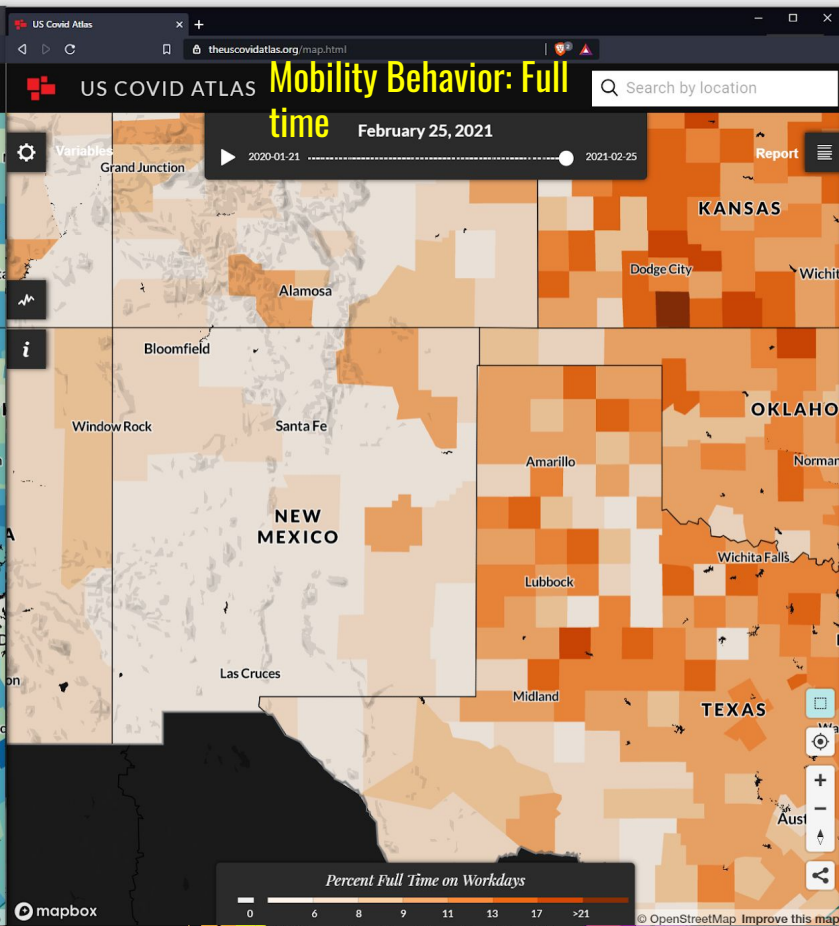
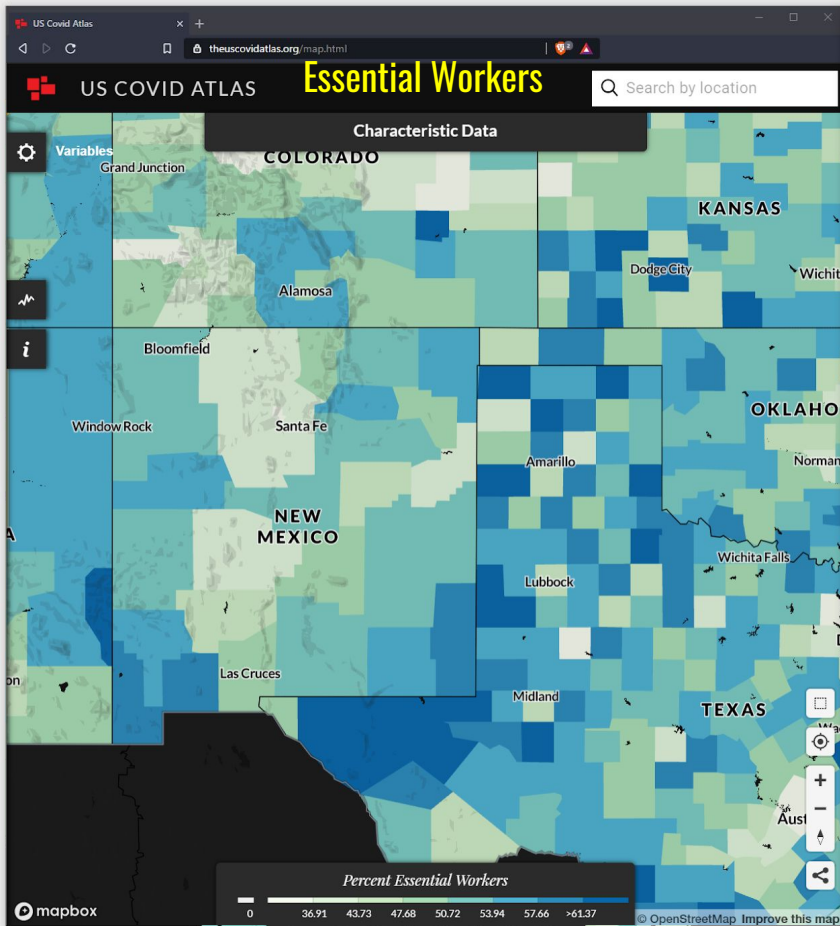
MOBILITY

Percent Home on Workdays

Percent Part Time on Workdays

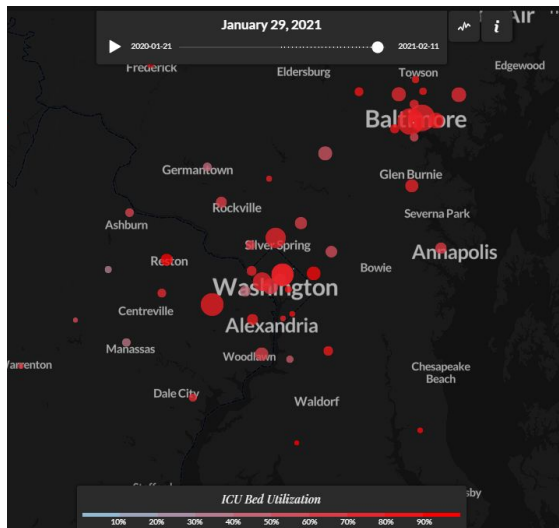
Percent Full Time on Workdays



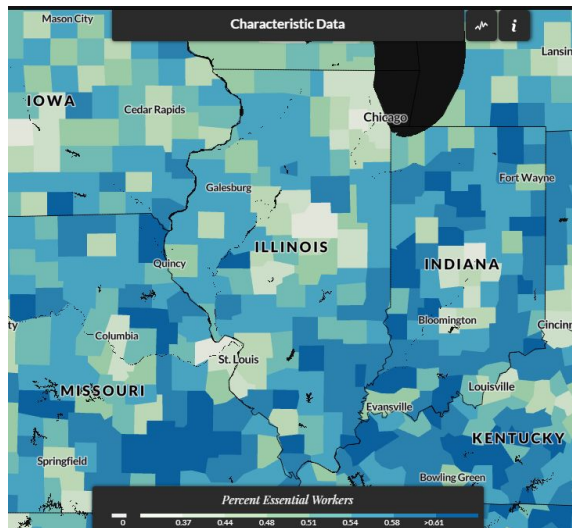




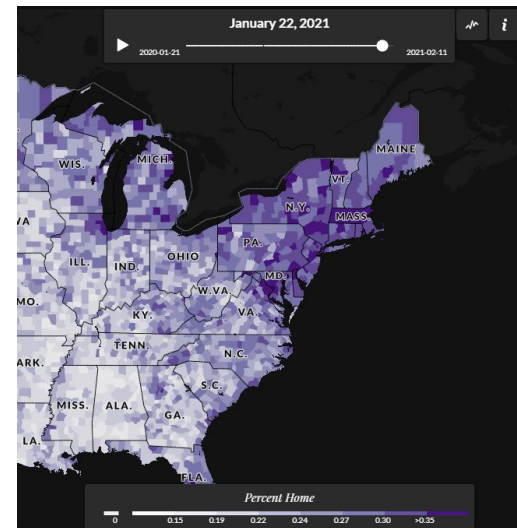
# New Data



**Hospital Facility Occupancy  
ICU and Adult Bed Usage  
(coming soon)**

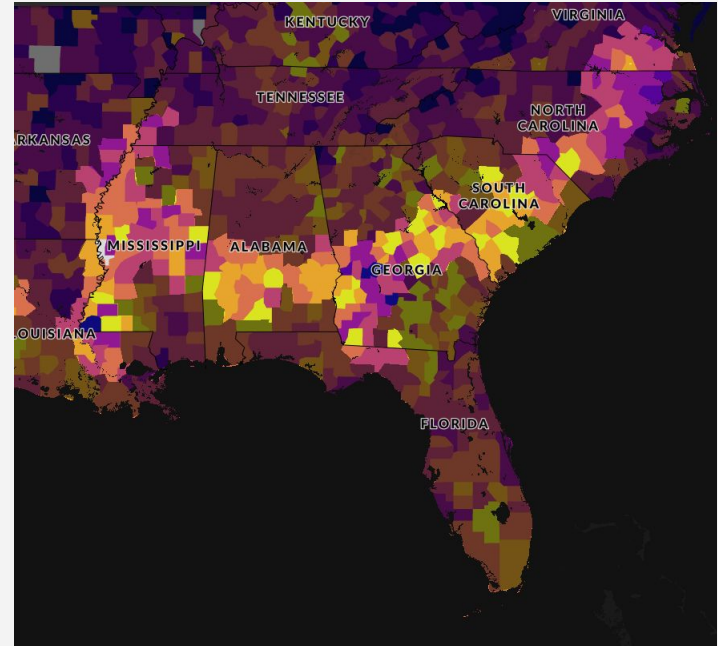
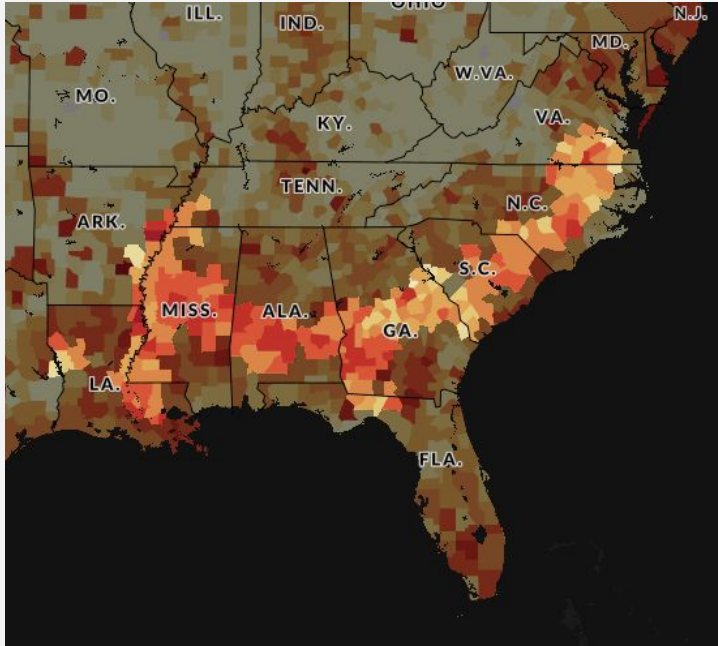


**Essential Workers**



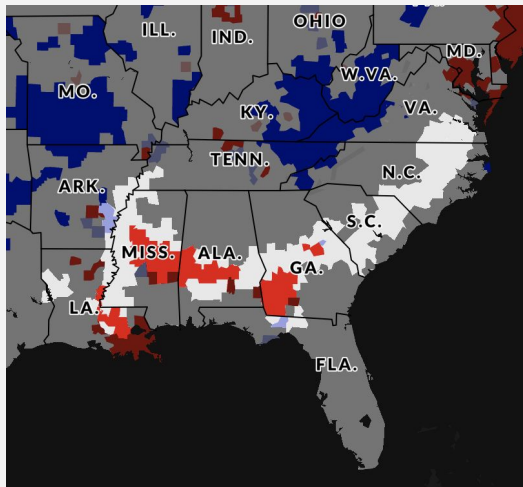
**Mobility Behavior (Phone)  
(Home, Full time and Part  
time behavior)**

# Insight #2. Uncover Vulnerable Communities

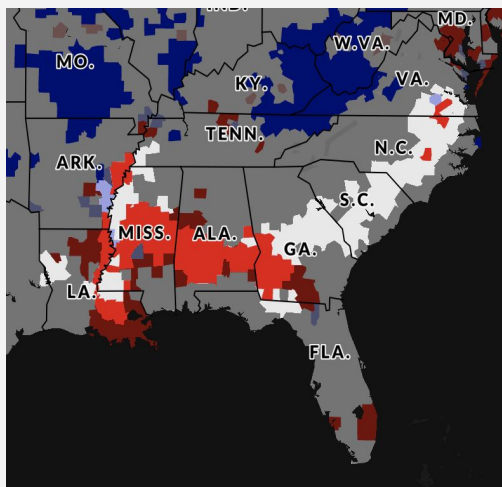


**Overlay:** The Black Belt in Southern U.S. (Left: July 2, 2020, cumulative confirmed cases per 100K population, via USAFacts, choropleth, Right: July 2, 2020 7-day average testing positivity percentage)

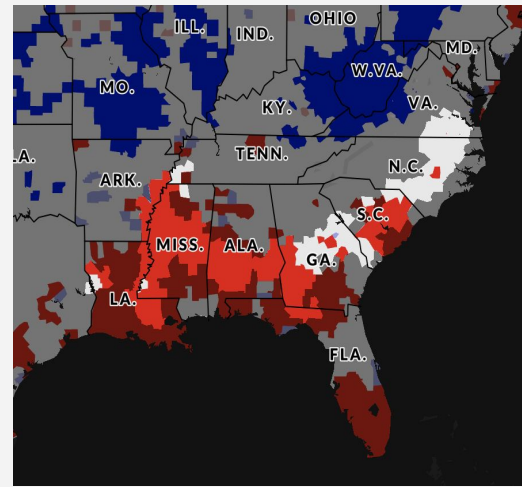
# Black Belt Hotspot Progression



May 25th, 2020

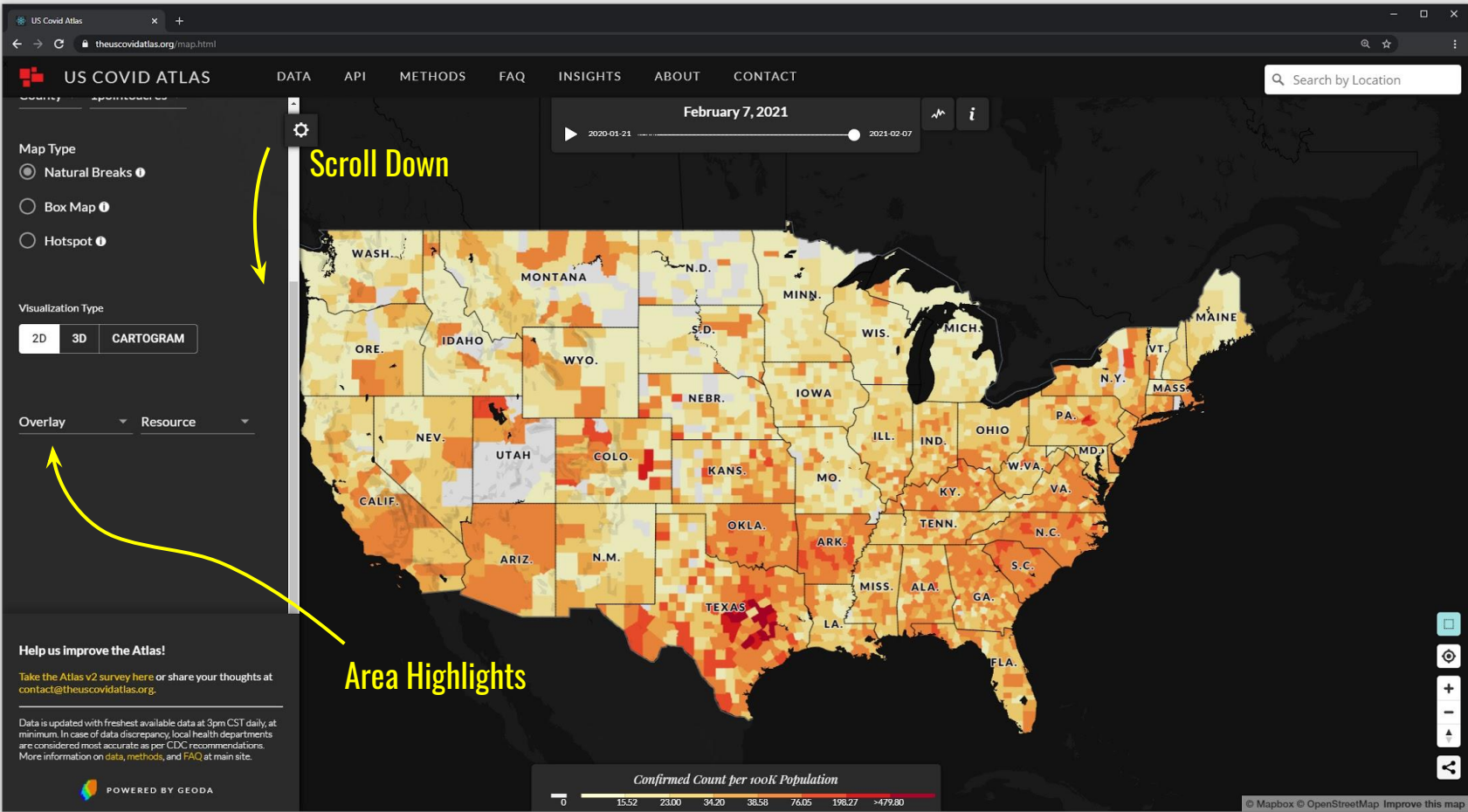


June 25th, 2020



July 25th, 2020

Progression of Black Belt multi-state hotspot in Southern United States using confirmed cases per 100K population (USAfacts data). Black Belt counties are the highlight overlay. The hotspots can be seen in May (left), expanding further in June (middle), and spillover to neighboring counties in July (right).



Map Type

- Natural Breaks
- Box Map
- Hotspot

Visualization Type

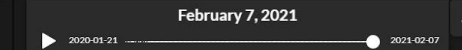
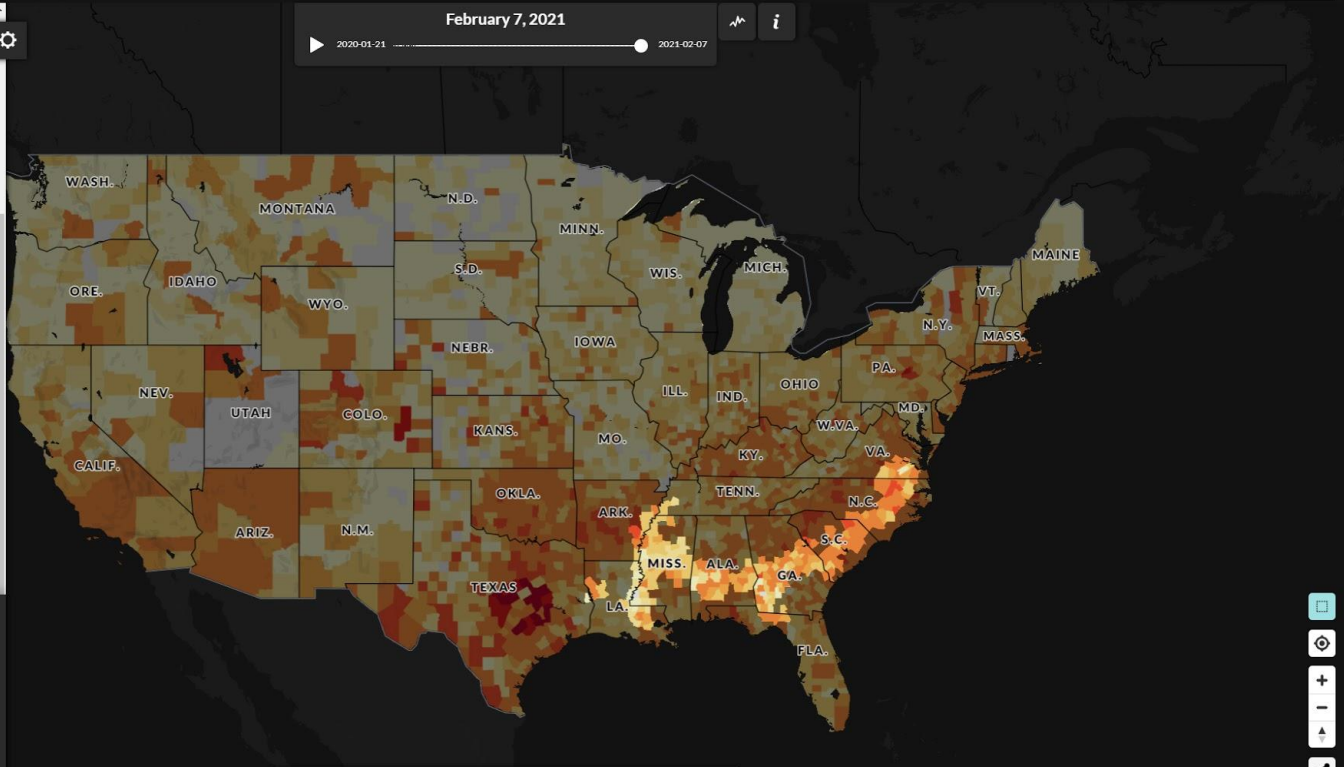
- None
- Native American Reservations
- Hypersegregated Cities
- Black Belt Counties**
- US Congressional Districts

Select Black Belt Counties

Help us improve the Atlas!

Take the Atlas v2 survey here or share your thoughts at contact@theuscovidatlas.org.

Data is updated with freshest available data at 3pm CST daily, at minimum. In case of data discrepancy, local health departments are considered most accurate as per CDC recommendations. More information on data, methods, and FAQ at main site.



Data Sources & Map Variables

Variable: Confirmed Count per 100K Population

Date Range: 7-Day Average

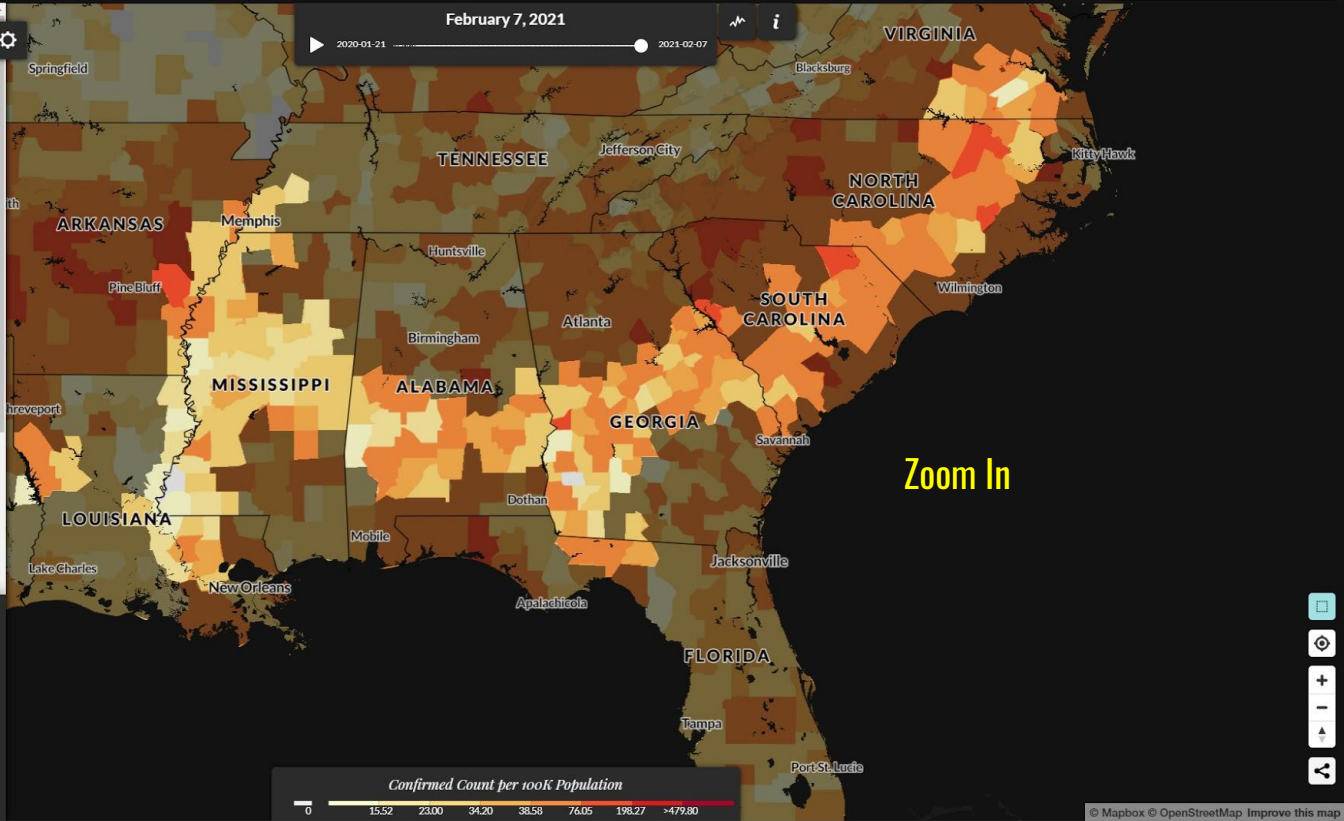
Geography: County

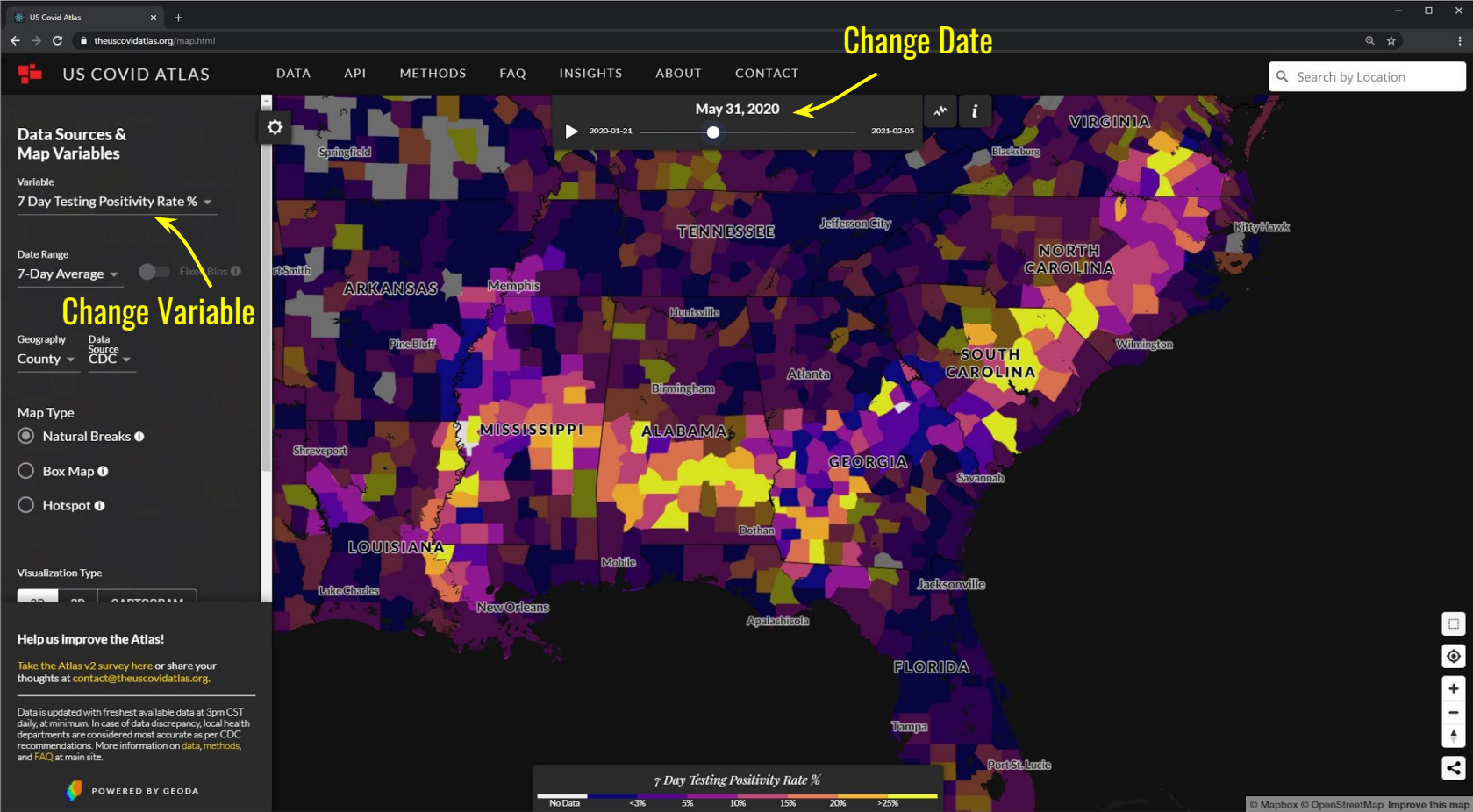
Map Type: Natural Breaks, Box Map, Hotspot

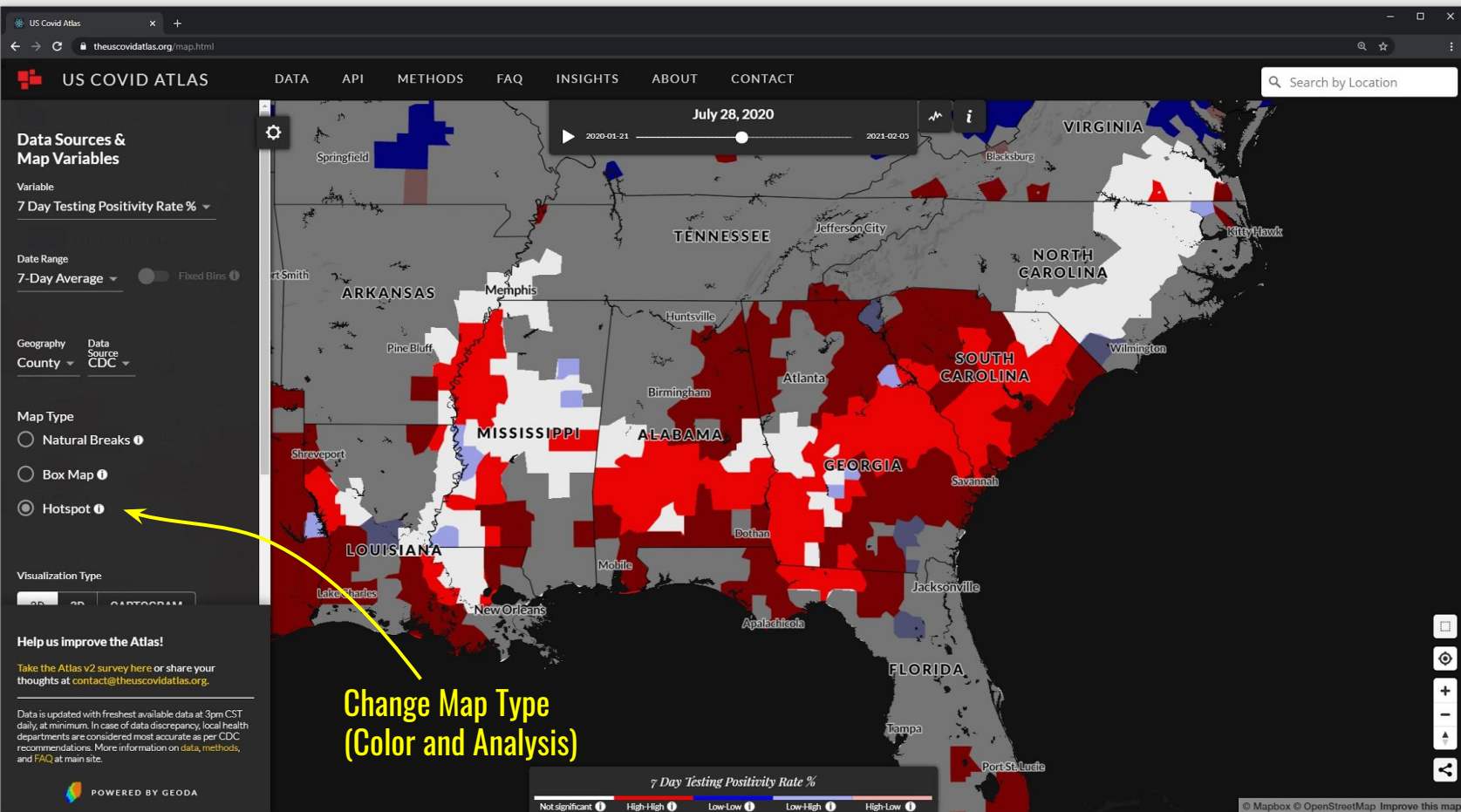
Visualization Type: 2D, 3D, CARTOGRAM

Help us improve the Atlas! Take the Atlas v2 survey here or share your thoughts at contact@theuscovidatlas.org.

Data is updated with freshest available data at 3pm CST daily, at minimum. In case of data discrepancy, local health departments are considered most accurate as per CDC recommendations.



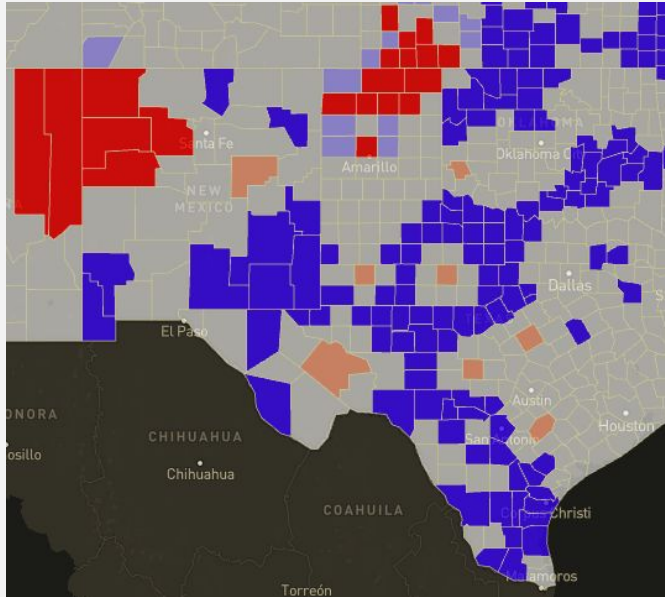




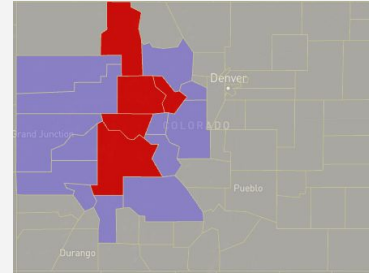
Change Map Type  
(Color and Analysis)



# Insight #3. Uncover Unexpected Hot Spots

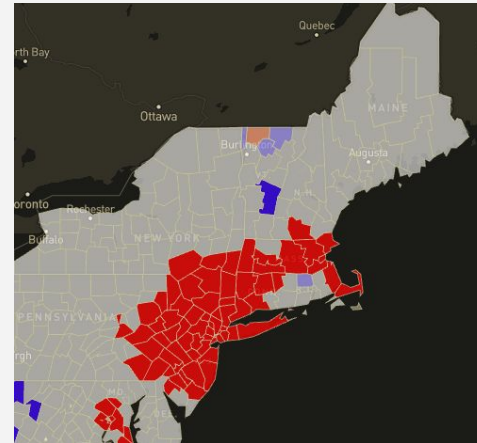


Tri-state COVID Spillover from Meatpacking Plant  
Outbreak in Southeastern Kansas. *June 1, 2020*



COVID Spillover from Ski  
Resort Outbreak in  
Colorado

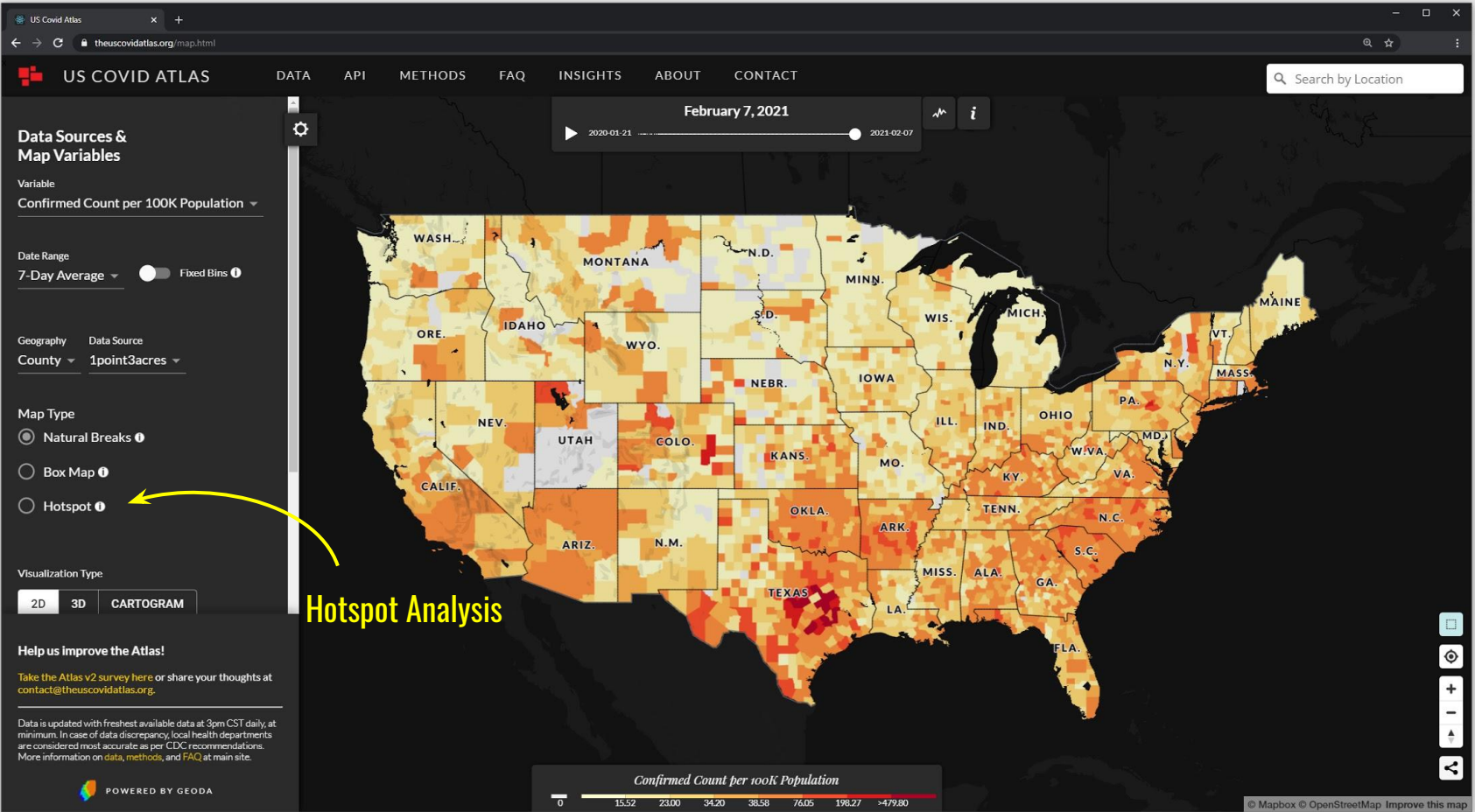
*March 13, 2020*



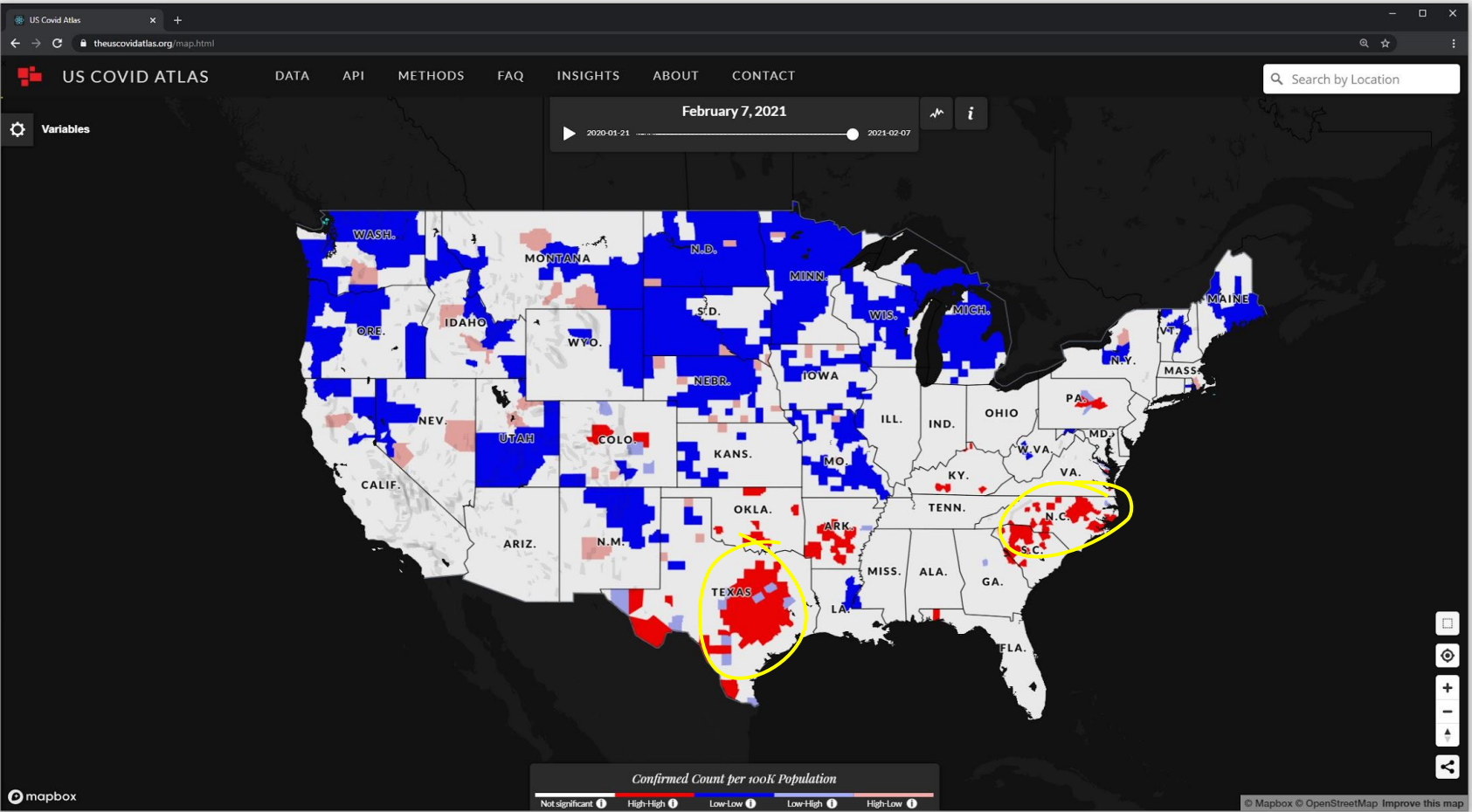
COVID Spillover from NYC  
to Nearby Vacation Homes

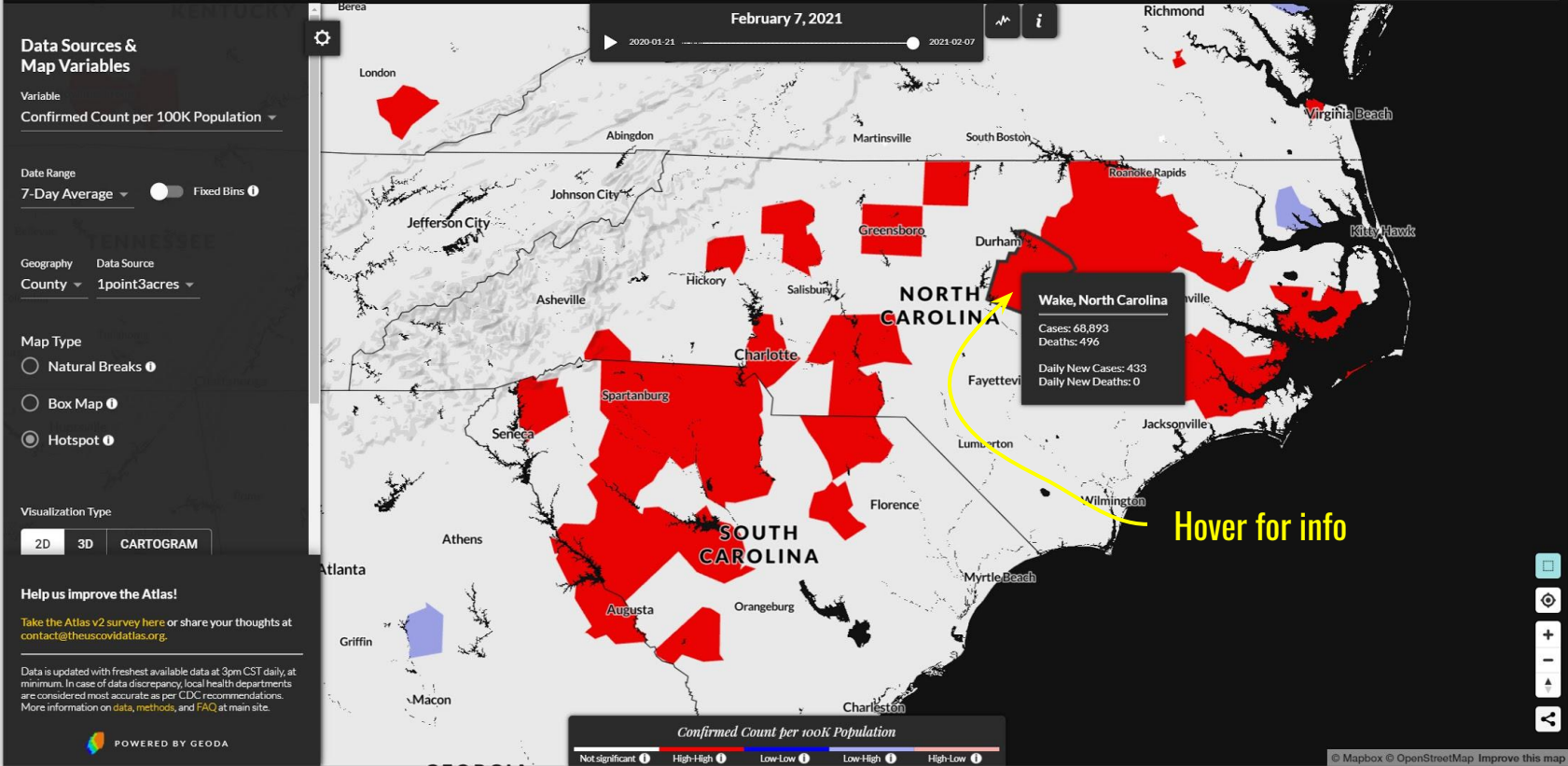
*April 10, 2020*

[featured in NYTimes]



Hotspot Analysis





Open Line Chart

Hover for info

### Data Sources & Map Variables

Variable  
Confirmed Count per 100K Population

Date Range  
7-Day Average

Geography  
County

Map Type  
Natural Breaks  
Box Map  
Hotspot

Visualization Type  
2D 3D CARTOGRAM

Help us improve the Atlas!  
Take the Atlas v2 survey here or share your thoughts at contact@theuscovidatlas.org.

Data is updated with freshest available data at 3pm CST daily, at minimum. In case of data discrepancy, local health departments are considered most accurate as per CDC recommendations. More information on data, methods, and FAQ at main site.

POWERED BY GEODA



US COVID ATLAS

DATA API METHODS FAQ INSIGHTS ABOUT CONTACT

February 7, 2021

2020-01-21 2021-02-07

Control + Click to Select Multiple

Aggregated Stats

7-Day Average New Cases

7-Day Average New Cases

Linear Scale

7-Day Ave. Case Counts

Confirmed Count per 100K Population

Not significant High-High Low-Low Low-High High-Low

Search by Location

Selected Counties

2021-02-07

Population 1,647,135

Total Cases 121,265

Total Deaths 1,258

Cases per 100k Population 7362.18

Deaths per 100k Population 76.38

New Cases per 100k Population 42.74

New Deaths per 100k Population 0.30

Licensed Hospital Beds 3,580

Community Health Factors

Children in poverty 15.46%

Income inequality 4.36

Median household income \$69,307.24

Food insecurity 13.91%

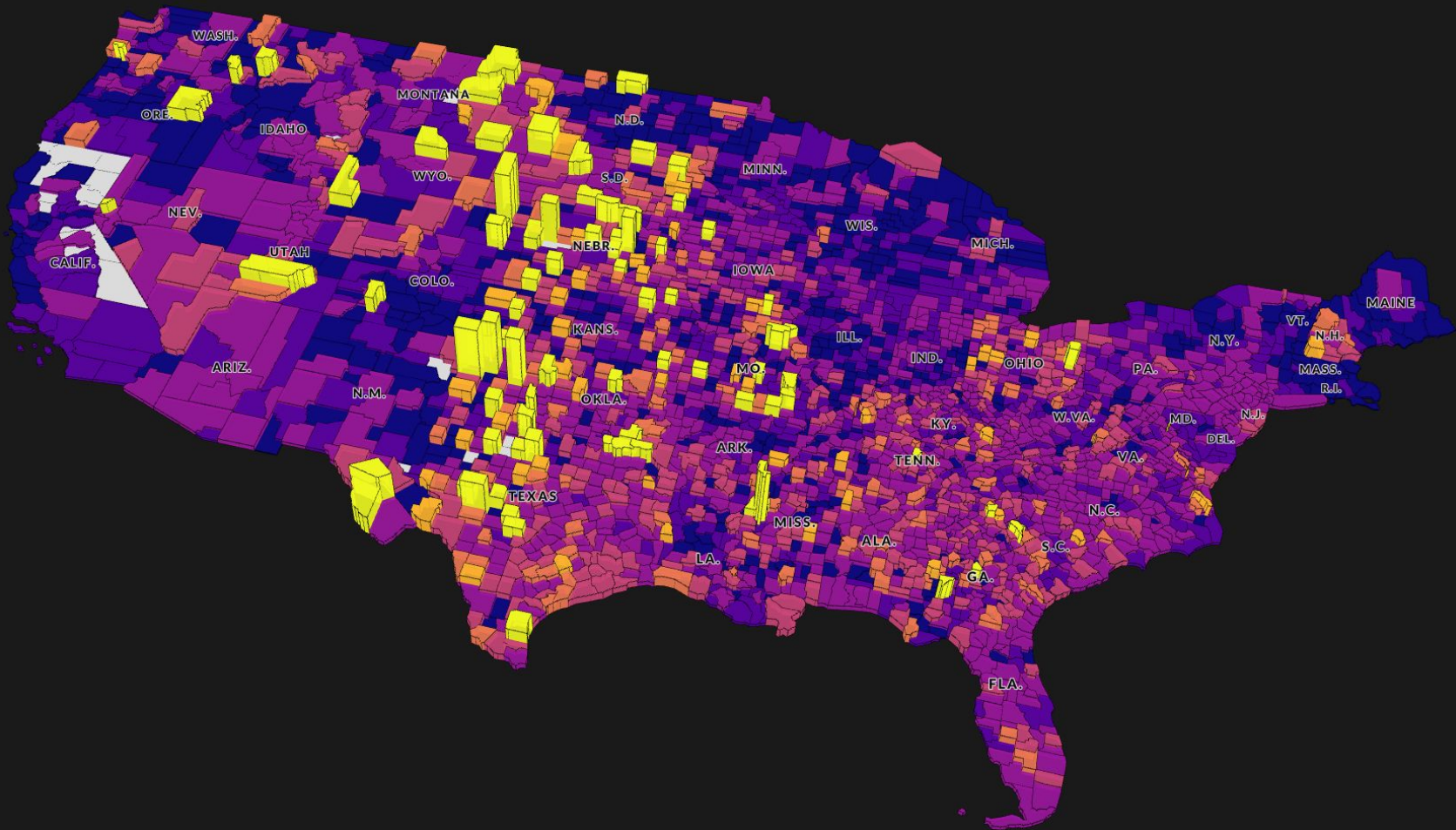
The screenshot displays the US COVID Atlas web application. The main map shows North Carolina counties, with several counties in the western and southern regions highlighted in red. A yellow arrow points to the map with the text 'Control + Click to Select Multiple'. A central graph titled '7-Day Average New Cases' shows a line chart of case counts from February 2020 to February 2021, with a legend for 'Total For Selection' and various counties. A yellow arrow points to the graph with the text '7-Day Ave. Case Counts'. On the right, a sidebar titled 'Selected Counties' provides aggregated statistics for the selected area as of February 7, 2021. The statistics include population, total cases, total deaths, and various rates per 100k population. A yellow arrow points from the 'Aggregated Stats' text to the sidebar. At the bottom, a legend for 'Confirmed Count per 100K Population' shows color-coded categories: Not significant, High-High, Low-Low, Low-High, and High-Low.

**Live Demo**

*Exploring the Atlas*

# Hands-on with the Atlas

1. Map animation
2. Composed Snapshot
3. Embedding and Sharing your map
4. Downloading Data



7 Day Testing Positivity Rate Percent



### Data Sources & Map Variables

Variable  
Confirmed Count per 100K Population

Date Range  
Custom Range Fixed Bins

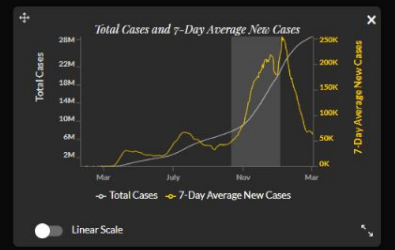
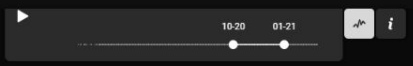
Geography Data Source  
State 1point3acres

Map Type  
Natural Breaks  
Box Map  
Hotspot

Visualization Type  
2D 3D CARTOGRAM

Overlay Resource

Data is updated with freshest available data at 3pm CST daily, at minimum. In case of data discrepancy, local health departments are considered most accurate as per CDC recommendations. More information on data, methods, and FAQ at main site.



**While the COVID pandemic is global,  
it's experienced locally.**

Yet no digital experiences currently integrate both quantitative and measured data that could add a much needed human perspective.

**Q&A**

# Additional Resources

Weekly insights and findings  
[medium.com/CovidAtlas](https://medium.com/CovidAtlas)

Tag us



[@covid\\_atlas](https://twitter.com/covid_atlas) | [@uscovidatlas](https://twitter.com/uscovidatlas)



Contact us

[mkolak@uchicago.edu](mailto:mkolak@uchicago.edu)

# Thank You!

See more at [USCovidAtlas.org](https://USCovidAtlas.org)