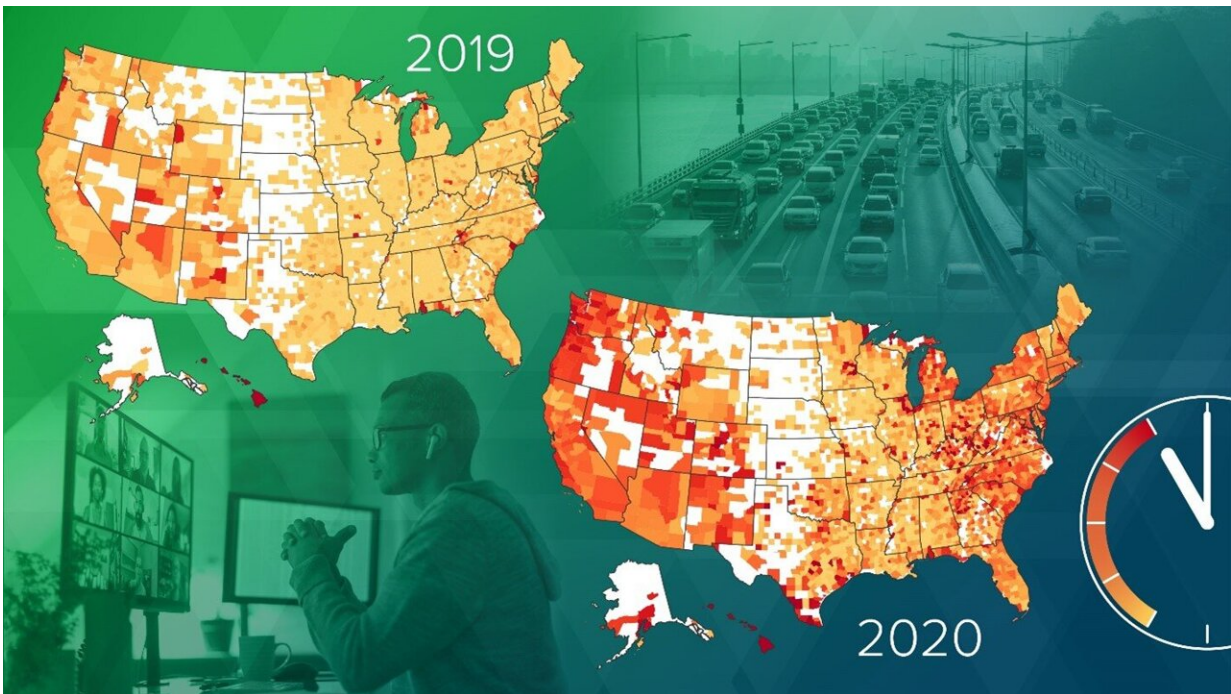# How the pandemic changed human mobility patterns

May 2 2022, by Liz L Neunsinger

Oak Ridge National Laboratory researchers quantified human behaviors during the early days of COVID-19, which could be useful for disaster response or city planning. Credit: Nathan Armistead/ORNL, U.S. Dept. of Energy

Researchers at Oak Ridge National Laboratory have empirically quantified the shifts in routine daytime activities, such as getting a morning coffee or takeaway dinner, following safer at home orders during the early days of the COVID-19 pandemic. These insights,

published in the *Journal of Transport Geography*, could help officials better understand traffic patterns and supplement the response to emergencies or crises.

Using SafeGraph data of GPS markers at millions of points of interest, the team identified the times when people were most active over 24-hour periods and how those differed from pre-pandemic timetables.

"We saw the largest differences in temporal and geographical behaviors during the morning and evening in 2020. With an increase in remote work and virtual schooling, we can see how people's activities changed when normal commutes changed," said ORNL's Kevin Sparks.

Notably, the sheer size of the datasets being ingested, cataloged, queried and analyzed for research required the team to build a significant compute infrastructure based on scalability and connectivity.

More information: Kevin Sparks et al, Shifting temporal dynamics of human mobility in the United States, *Journal of Transport Geography* (2022). DOI: 10.1016/j.jtrangeo.2022.103295

Provided by Oak Ridge National Laboratory