

# Air quality, health, and equity in the Washington, DC region

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MWAQC-TAC

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THE GEORGE WASHINGTON UNIVERSITY





# Ways to measure air pollution

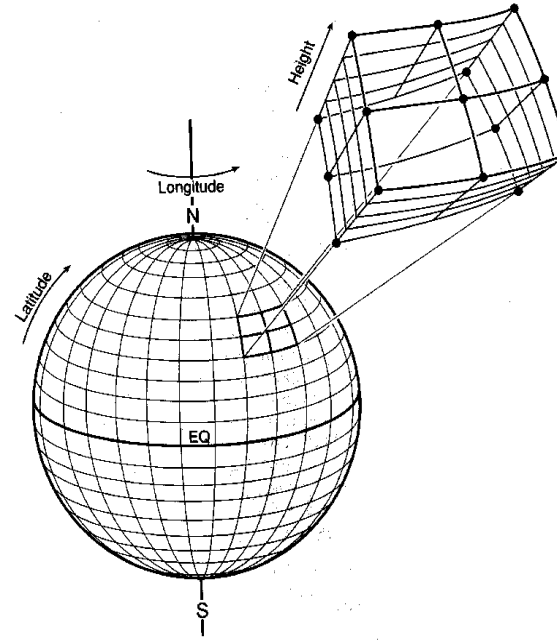
Ground-based monitors



Sensor networks



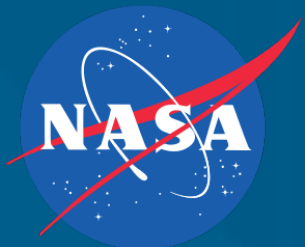
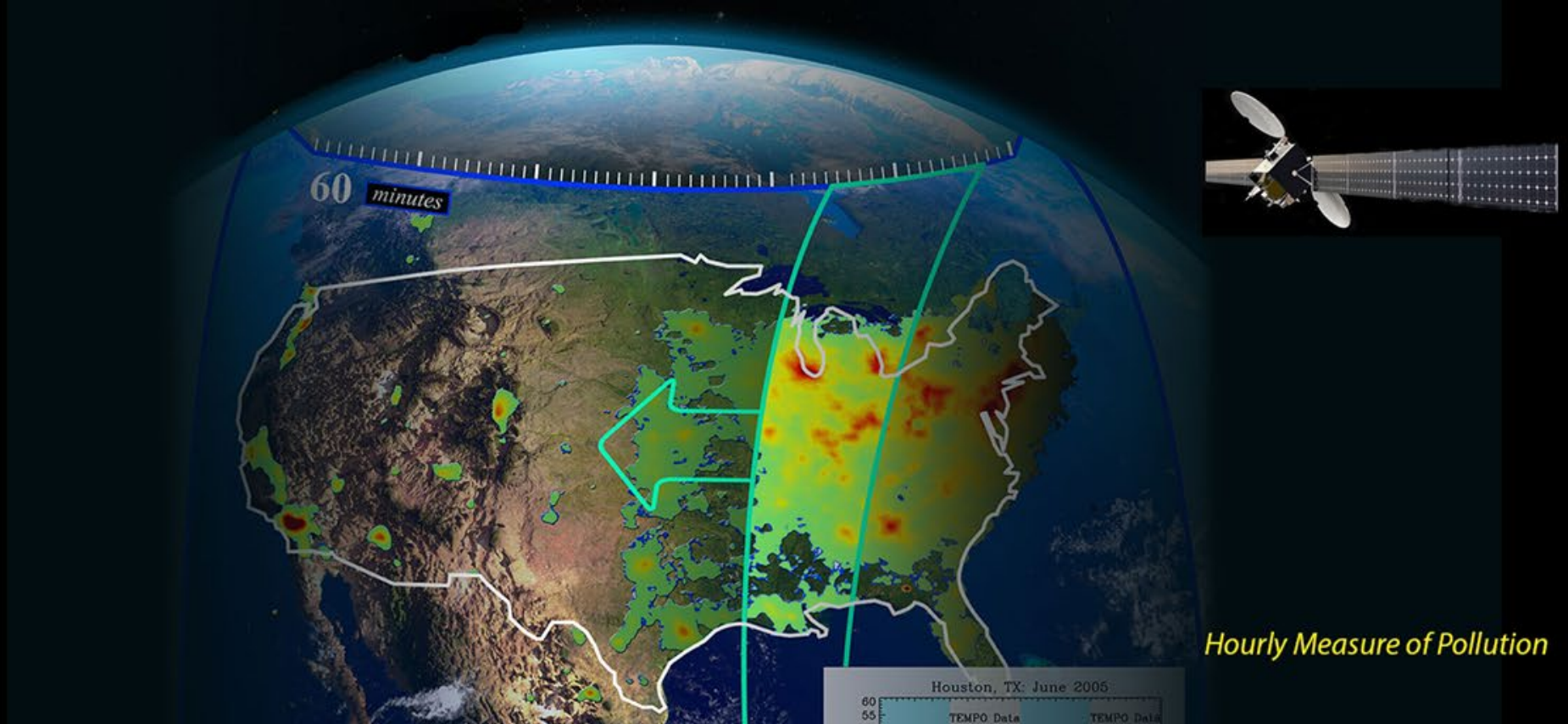
Models – statistical and physical



Satellite remote sensing

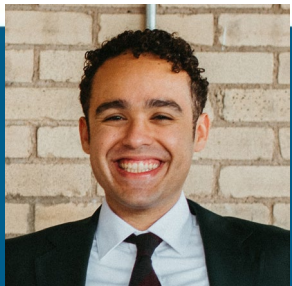
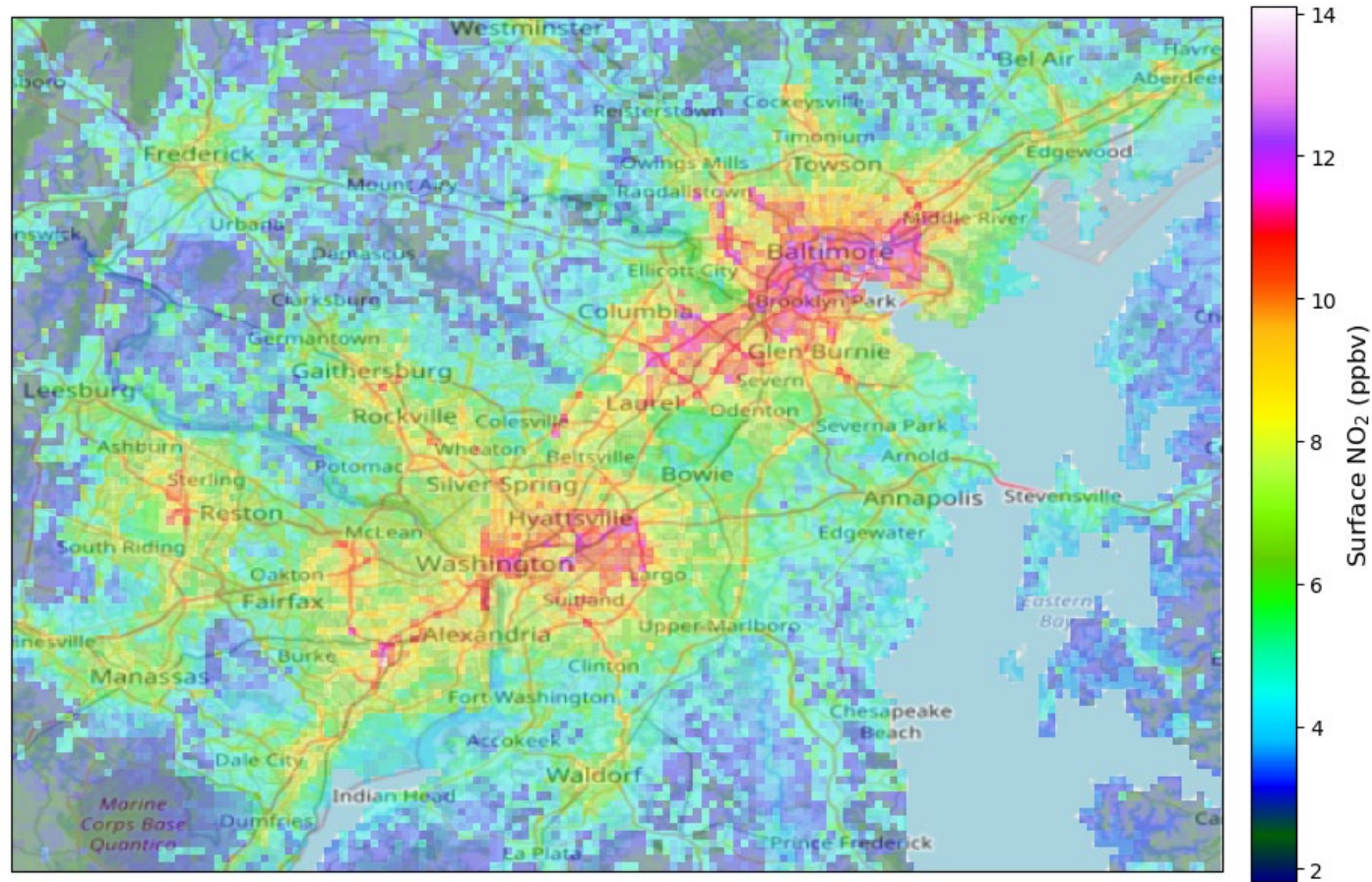


# TEMPO: First satellite-based measurements of air quality every hour over US



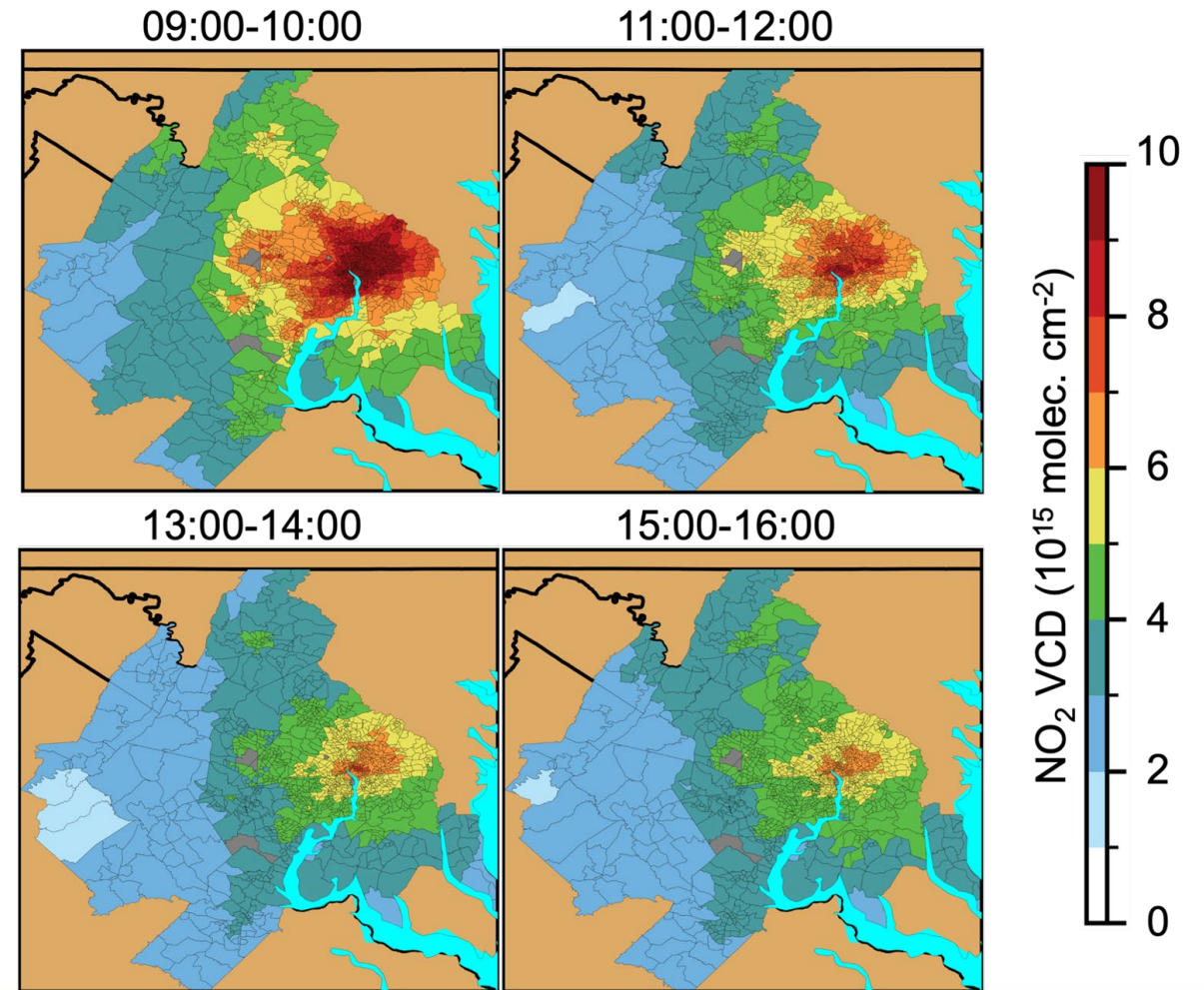
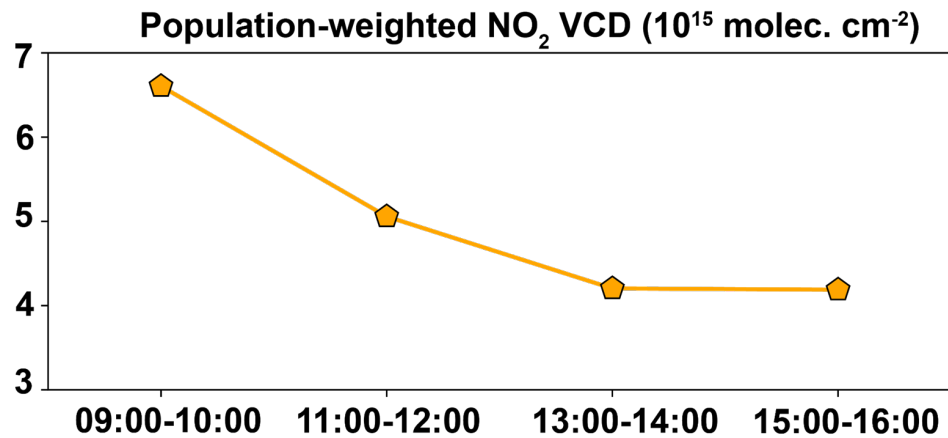


# NO<sub>2</sub> levels in DC-Baltimore area from TEMPO land use regression model



**Dr. Omar Nawaz**  
Cardiff University

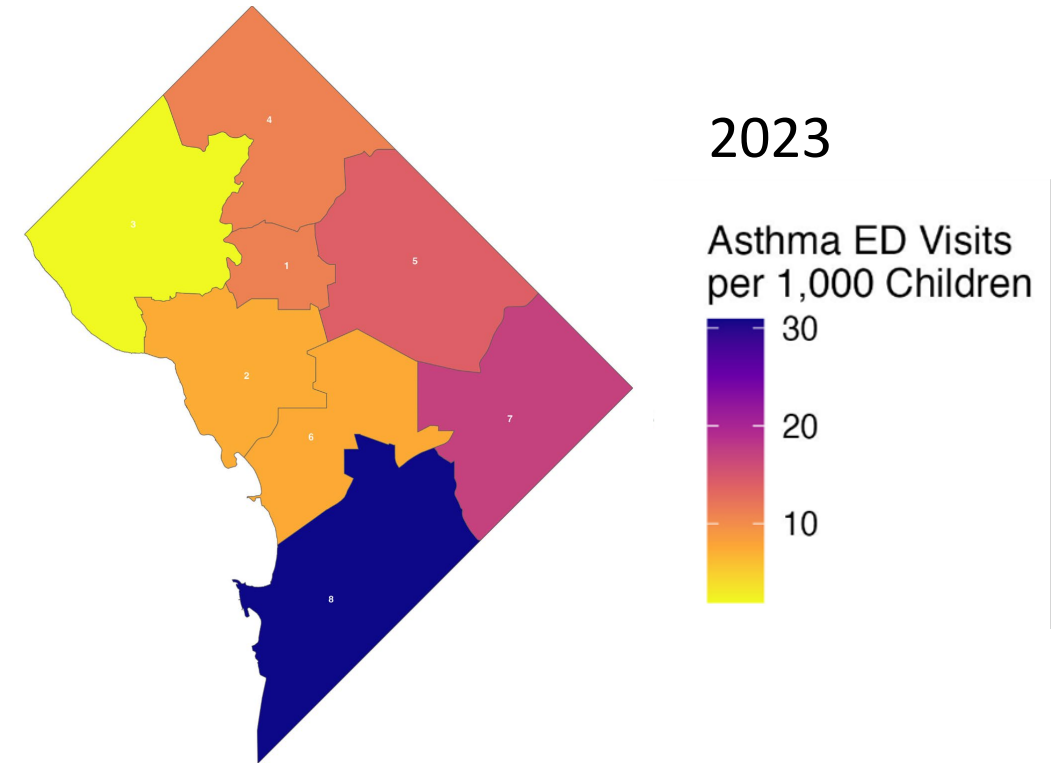
# TEMPO – NO<sub>2</sub> pollution in DC is higher in mornings and declines throughout the day



Dr. Lulu Chen  
George Washington University

# Does Ambient Air Pollution affect Pediatric Asthma Risks in Washington D.C.?

- Collaboration between GW and Children's National Hospital to understand how ambient air pollution and other environmental factors affect pediatric asthma health outcomes in D.C.
- Epidemiologic study on the effects of air pollution (derived from satellite observations) on risk of asthma emergency department (ED) visits
  - ED visits are disproportionately higher among children living in Wards 7 and 8



**Dr. Kelvin Fong**  
GW



**Dr. Anand Gourishankar**  
Children's National Hospital





Research and Engagement for Action  
on Climate and Health Center

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The Research and Engagement for Action on Climate and Health (REACH) Center is a multi-institutional exploratory center funded by the National Institute for Environmental Health Sciences.

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# REACH Executive Committee



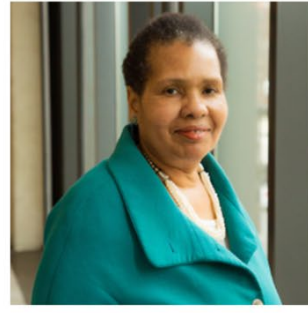
Susan Anenberg



Gaige Kerr



Cindy Liu



Janet Phoenix



Bob Orttung



Maria Harris



Sarah Vogel



Daniel Tong



Joseph Wilkins



Osinachi Ajoku



Kate Applebaum



Lucas Henneman



Lauren Johnson

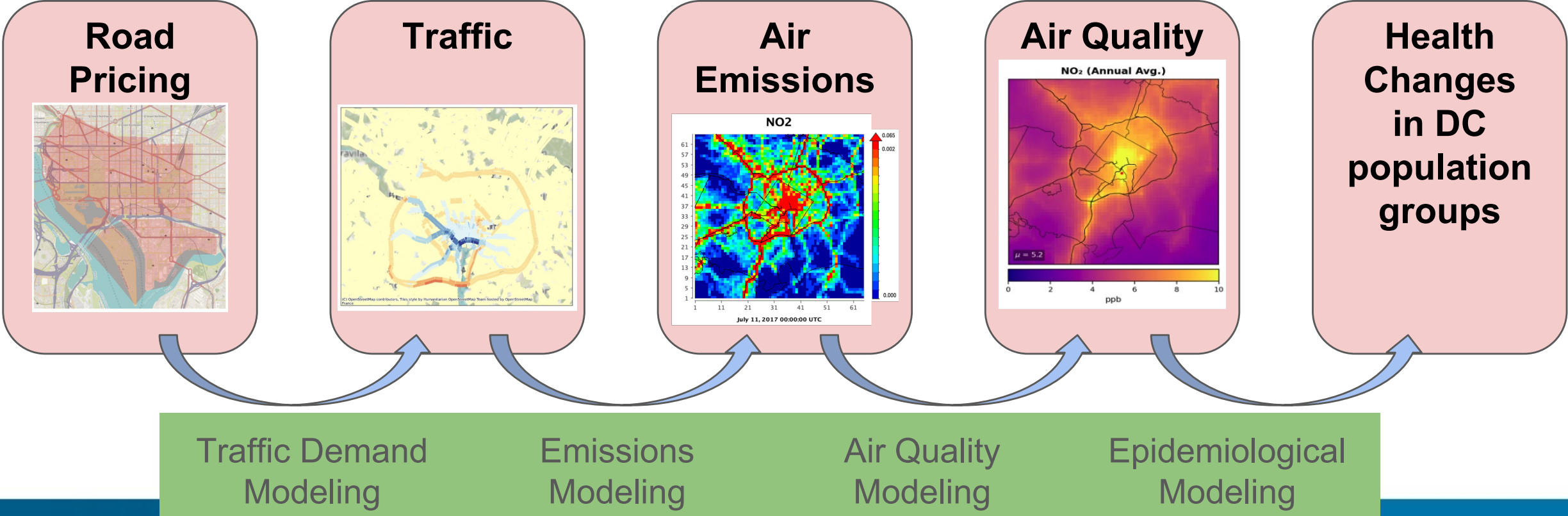


Tim Holtz



# Transportation, air quality, and health: a community-centered study of road pricing in Washington, DC

Investigating traffic policy refinements to improve health and reduce exposure differences between groups, with direct involvement of community partner (Greater Greater Washington)



**Dr. Lucas Henneman**  
George Mason University



**Dr. Kelvin Fong**  
GW



# REACH Student Fellows

Supporting the DC Health, Office of Environmental Protection's Environmental Health Administration  
Focus areas: Development and implementation of programs to enhance heat health resilience



Hoda Hallaji  
PhD candidate in Environmental  
Engineering  
George Mason University



Jie Min  
DrPH candidate  
George Washington University



Alycia Triplett  
PhD candidate in Atmospheric  
Sciences  
Howard University



# REACH Center mission and organization

- Mission: Bridge big data to health-protective solutions for climate-sensitive risk factors.
- More specifically: **Leverages the power of novel geospatial datasets** and **research co-generation with governmental and non governmental partners** to conduct **research at the intersection of climate and health**, from **local to global scales**.

## Center Cores



### Administrative

Leadership, funding and governance of the Center



### Developmental

Developing and fostering new research through pilot grants and educational opportunities



### Community Engagement

Catalyzing collaboration between community groups and academic research



### Exposure Assessment

Building capacity for use of geospatial environmental datasets with health datasets

# Opportunities for community engagement with the REACH Center



Become a member



Join our listerv



Visit our website

Or just email Katie O'Donnell  
**REACH@gwu.edu**

