

# VERONICA SOUTHERLAND, PhD, MPH

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## EDUCATION

### Doctor of Philosophy, Environmental Health, May 2022

George Washington University, Milken Institute School of Public Health, Washington, D.C.

Dissertation title: Assessing inequitable distribution of environmental health burdens using high resolution satellite-derived exposure data.

Advisor: Dr. Susan Anenberg

### Master of Public Health, Environmental Health Science and Policy, May 2013

George Washington University, Milken Institute School of Public Health, Washington, D.C.

### Bachelor of Arts, International Affairs, December 2008

Florida State University, Tallahassee, FL

## PROFESSIONAL & RESEARCH EXPERIENCE

| Role                                                                                                                | Institution                                                                                  |                           |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------|
| <b>Scientist</b><br>Global Clean Air, Healthy Communities                                                           | Environmental Defense Fund<br>Washington, D.C.                                               | 2023-Current              |
| <b>Professorial Lecturer</b><br><b>Practicum Director</b><br>Department of Environmental and<br>Occupational Health | George Washington University<br>Milken Institute School of Public Health<br>Washington, D.C. | 2023-Current<br>2023-2025 |
| <b>Environmental Protection Specialist</b><br>Office of Land and Emergency Management                               | US Environmental Protection Agency<br>Washington, D.C.                                       | 2020-2022                 |
| <b>Senior Research Associate</b><br>Department of Environmental and<br>Occupational Health                          | George Washington University<br>Milken Institute School of Public Health<br>Washington, D.C. | 2019-2020                 |
| <b>Analyst</b>                                                                                                      | ICF International, Inc.<br>Fairfax, VA                                                       | 2018-2019                 |
| <b>Research Associate</b>                                                                                           | Uniformed Services University of the Health Sciences<br>Bethesda, MD                         | 2017-2018                 |
| <b>Research Contractor</b>                                                                                          | Environmental Health Analytics, LLC<br>Washington, D.C.                                      | 2017                      |
| <b>Recommendations Specialist</b>                                                                                   | U.S. Chemical Safety and Hazard Investigation Board<br>Washington, D.C                       | 2015-2017                 |
| <b>Project Coordinator</b>                                                                                          | Children's National Health System                                                            | 2013-2015                 |

## AWARDS

Institutional Investigator (PI: Marlene Cortez-Lugo): “*Evaluating Climate and Air Pollution Mitigation Strategies in the metropolitan area of Monterrey, Nuevo León: Public Health Benefits of Black Carbon Reduction*”. **Wellcome Trust**, Climate mitigation solutions in LMICs (\$825,710). Feb 6, 2026-Dec 31, 2029.

Institutional Investigator (PI: Sarav Arunachalam): “*Comprehensive health impact assessment of the natural gas supply chain life cycle from production to end use*”. **Wellcome Trust**, Methane and health award (\$84,485). Oct 1, 2025-Sept 31, 2027.

Principal Investigator: “*Maximizing health benefits from reducing oil and gas emissions: novel approaches to health impact assessment*”. **Wellcome Trust**, discretionary award (\$655,000). June 1, 2025-May 31, 2026.

Principal Investigator: “*Partnering to Promote Health Assessment of Climate Action*”. **Sall Family Foundation** gift (\$500,000). January 1, 2024-December 31, 2024.

## PUBLICATIONS

## Peer-reviewed journal articles

- [14] Schwarz L, Flores NM, Gonzalez DJX, McBrien H, Brooks N, Buonocore JJ, Aker A, **Southerland V**, Casey JA, Willis MD. Residential proximity to oil and gas development and socioeconomic 5 conditions: A comparative analysis of 33 countries. *Under review*.
- [13] **Southerland V**, Sanchez S, Rojas-Rueda D, Weisner M, Calderon JM, Brookins S, et al. From knowledge gaps to research priorities: a collaborative research prioritization process for methane and health research. *Under review*.
- [12] Buckley L, Buonocore JJ, Khemani M, **Southerland V**, Willis MD, Geddes J, Levy JI, Sanchez S. Assessing the magnitude and distribution of health impacts from nitrogen dioxide exposure in Mexico: A comparative analysis of global exposure datasets. *Revise and resubmit*.
- [11] Naess B, Buonocore J, **Southerland V**, Khemani M, Seppanen C, Roy A, et al. (2025). Distribution of air quality health benefits of medium and heavy-duty electrification policies in New York City. *Environmental Research: Health*, 3(1), 011001.
- [10] Gohlke JM, Harris MH, Roy A, Thompson TM, DePaola M, Alvarez RA, Anenberg SC, Apte JS, Demetillo MG, Dressel IM, Kerr GH, Marshall JD, Nowlan AE, Patterson RF, Pusede SE, **Southerland VA**, & Vogel SA (2023). State-of-the-Science Data and Methods Need to Guide Place-Based Efforts to Reduce Air Pollution Inequity. *Environmental Health Perspectives* 131.12: 125003.
- [9] **Southerland V**, Zota A, Parasram V, Alvarez C, Clement M, Anenberg S. (2023). Temporal trends in sociodemographic composition and land development within U.S. fence-line communities surrounding hazardous industrial facilities: 2001–2019. *Environmental Research Letters* 18. 14042 DOI 10.1088/1748-9326/ado136
- [8] Li C, van Donkelaar A, Hammer MS, McDuffie EE, Burnett RT, Spadero JV, Chatterjee D, Cohen AJ, Apte JS, **Southerland, VA**, Anenberg SC, Brauer M, Martin RV. Reversal of trends in global fine particulate matter air pollution. *Nature Communications* 14, 5349 (2023). <https://doi.org/10.1038/s41467-023-41086-z>
- [7] **Southerland VA**, Brauer M, Moheggh A, Apte J, Hammer M, Martin RV, van Donkelaar A, Anenberg SC. Global urban temporal trends in fine particulate matter (PM<sub>2.5</sub>) and attributable health burdens: estimates from global datasets. *Lancet Planetary Health*. [https://doi.org/10.1016/S2542-5196\(21\)00350-8](https://doi.org/10.1016/S2542-5196(21)00350-8)
- [6] Apte J, Seraj S, Chambliss S, Hammer MS, **Southerland, VA**, Anenberg SC, et al. (2021). Air Inequality: Global Divergence in Urban Fine Particulate Matter Trends. *ChemRxiv*. Preprint. <https://doi.org/10.26434/chemrxiv.14671908.v1>
- [5] Castillo MD, Kinney PL, **Southerland V**, Arno CA, Crawford K, van Donkelaar A, Hammer M, Martin RV, Anenberg SC. Estimating Intra-Urban Inequities in PM<sub>2.5</sub>-Attributable Health Impacts: A Case Study for Washington, DC. *Geohealth*. 2021 Nov 1;5(11):e2021GH000431. doi: 10.1029/2021GH000431.
- [4] **Southerland VA**, Anenberg SC, Harris M, Apte J, Hystad P, van Donkelaar A, et al. (2021). Assessing the Distribution of Air Pollution Health Risks within Cities: A Neighborhood-Scale Analysis Leveraging High-Resolution Data Sets in the Bay Area, California. *Environmental Health Perspectives*, 129(3), 037006.
- [3] Anenberg SC, Henze DK, **Tinney V**, Kinney PL, Raich W, Fann N, et al. Estimates of the Global Burden of Ambient PM<sub>2.5</sub>, Ozone, and NO<sub>2</sub> on Asthma Incidence and Emergency Room Visits. *Environmental Health Perspectives*. 2018;126(10):107004-1-14.
- [2] **Tinney VA**, Anenberg SC, Kaszniak M, Robinson B. Eighteen years of recommendations to prevent industrial chemical incidents: results and lessons learned of the US Chemical Safety Board. *Public Health*. 2016 Oct;139:183-188. doi: 10.1016/j.puhe.2016.04.011. Epub 2016 May 17.
- [1] **Tinney V**. Children's health and the environment. *Pa Nurse*. 2014;69(1):4-13

## Commentaries

- [2] **Tinney V**, Denton J, Tyler L, Paulson J. School siting near industrial chemical facilities: Findings from the U.S. Chemical Safety Board's investigation of the West Fertilizer explosion. *Environmental Health Perspectives*. 2016;124(10):1493-1496.
- [1] **Tinney VA**, Paulson JA, Larsen JW, Bathgate SL. Medical education for obstetricians and gynecologists should incorporate environmental health. *American Journal of Obstetrics and Gynecology*. 2015;212(2):163-6.e1.

## EPA Regulatory Documents

- [3] U.S. EPA, 2022 (contributing author). Accidental Release Prevention Requirements: Risk Management Program Under the Clean Air Act; Safer Communities through Chemical Accident Prevention. Proposed rule. Office of Emergency Management, Washington, DC. Available at: <https://www.federalregister.gov/documents/2022/08/31/2022-18249/accidental-release-prevention-requirements-risk-management-programs-under-the-clean-air-act-safer>

[2] U.S. EPA, 2022 (contributing author). Clean Water Act Hazardous Substance Worst Case Discharge Planning. Proposed rule. Office of Emergency Management, Washington, DC. Available at: <https://www.regulations.gov/document/EPA-HQ-OLEM-2021-0585-0001>

[1] U.S. EPA, 2021 (contributing author). Safety Alert: Public Safety at Oil and Gas Upstream Facilities. Office of Emergency Management, Washington, DC. Available at: <https://www.epa.gov/rmp/oil-and-gas-safety-alert-public-safety-oil-and-gas-upstream-facilities>.

### Other publications

[3] Environmental Defense Fund (contributing author). Breathing life into Amazonian cities: A transformative investment case for clean air, health equity and economic opportunity. 2025. Washington, DC:Environmental Defense Fund. Available at: <https://www.edf.org/breathing-life-amazonian-cities-transformative-investment-case-clean-air-health-equity-and-economic>

[2] Health Effects Institute (contributor). 2022. Air Quality and Health In Cities: A State of Global Air Report 2022. Boston, MA:Health Effects Institute. Available at: <https://www.stateofglobalair.org/resources/health-in-cities>.

[1] Paulson J, **Tinney V**. Potential and Known Health Impacts Associated with Unconventional Natural Gas Extraction. In M Finkel, ed. The Human and Environmental Impact of Fracking: How Fracturing Shale for Gas Affects Us and Our World. Santa Monica, CA: Praeger; 2015:1-22.

### PRESENTATIONS

[8] **Southerland V**, Stainforth T. Attainment of the European Union's Green Deal Zero Pollution Action Plan goals for fine particulate matter attributable mortality in urban areas. 2023. American Geophysical Union, San Francisco, CA.

[7] **Southerland V**. Methane Matters: Exploring the health impacts of methane mitigation. George Washington University Environmental and Occupational Health Department Fall Research Seminar Series. October 25<sup>th</sup>, 2023.

[6] **Southerland V**. The impact of air quality on the health of DC residents. George Washington University Hospital Health Policy Grand Rounds. May 24, 2023.

[5] **Southerland V**, Anenberg SC, Roy A, Harris M. 2020. Assessing the distribution of air pollution health risks within cities: a neighborhood-scale analysis leveraging high resolution datasets in the Bay Area, California. International Society for Environmental Epidemiology, virtual.

[4] **Southerland V**, Roy A. 2019. Google Street View and the health burden of air pollution. American Geophysical Union Annual Meeting, San Francisco, CA.

[3] **Southerland V**. 2019. Health Impacts of Air Pollution using Satellites and Mobile Monitoring. American Geophysical Union Annual Meeting, San Francisco, CA.

[2] **Tinney, V**. 2016. Outside the Facility Fenceline: The Proximity of Chemical Facilities to Communities and Potential Public Consequences of Catastrophic Accidents. American Public Health Association Meeting, Denver, CO.

[1] **Tinney, V**. 2016. U.S. Chemical Safety Board Recommendations to the National Fire Protection Association. National Fire Protection Association Annual Conference, Las Vegas, NV.

### Poster presentations

[3] **Southerland V**, Sanchez S, Weisner, M, Pusch J. Building a health research alliance to drive community-centered climate action in Mexico. 2024. American Geophysical Union Fall Meeting, Washington, DC.

[2] **Southerland V**, Parasram V, Anenberg SC. 2021. Temporal trends in land use and environmental justice near hazardous industrial facilities across the US. American Geophysical Union Fall Meeting, virtual.

[1] **Southerland V**, Anenberg SC, Harris M, Roy A, Apte J, Hystad P, Vodonos A, Schwartz J. 2019. Assessing the distribution of air pollution health risks within cities: a neighborhood-scale analysis leveraging high resolution datasets in the Bay area, California. American Geophysical Union, San Francisco, CA.

### RECOGNITION

- Individual Excellence Award, Office of Land and Emergency Management, US Environmental Protection Agency, 2022
- Analyst of the Year, Office of Land and Emergency Management, US Environmental Protection Agency, 2021
- Grand Prize Winner (\$5,000), Data Visualization and Storytelling Competition, American Geophysical Union (AGU) and the National Aeronautics and Space Administration (NASA), 2019
- Full doctoral tuition, Milken Institute School of Public Health Institutional Scholarship, 2018

**TEACHING EXPERIENCE**

| <b>Role</b>                 | <b>Responsibilities</b>                                                                                                                                                             | <b>Dates</b>                  | <b>Course Name</b>                                                                         | <b>Institution</b>                                              |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Teaching assistant          | Provided feedback to graduate students on draft assignments, Graded homework assignments, answered student questions, maintained Blackboard materials for ~20 graduate students.    | Spring 2025, 2024, 2023, 2022 | Protecting Public Health and the Environment: Policies, Politics, and Programs (Pubh 6122) | Milken Institute of Public Health, George Washington University |
| Graduate teaching assistant | Held weekly office hours, graded weekly homework assignments, conducted in-class, SAS-based data-analysis laboratory, assisted with code troubleshooting for ~20 graduate students. | Spring 2020                   | Quantitative Methods in Environmental and Occupational Health (Pubh 6131)                  | Milken Institute of Public Health, George Washington University |
| Graduate teaching assistant | Taught a 120-minute lecture on chemical safety and occupational health, graded exams, and answered student questions for ~40 graduate students                                      | Fall 2019                     | Assessment and Controls of Environmental and Occupational Hazards (Pubh 6126)              | Milken Institute of Public Health, George Washington University |
| Graduate teaching assistant | Updated lecture materials to include R and STATA coding examples, office hours, conducted exam review sessions for ~60 graduate students                                            | Fall 2017                     | Biostatistics I (PMO503)                                                                   | Uniformed Services University of the Health Sciences            |

**PROGRAMMING SKILLS**

- **R/RStudio:** Advanced level
- **ArcGIS/ArcPro:** Advanced level
- **SAS:** Intermediate level
- **STATA:** Intermediate level
- Comprehensive Air quality Model with extensions (**CAMx**): Intermediate level
- Sparse Matrix Operator Kernel Emissions (**SMOKE**): Beginner level
- **GDAL:** Beginner level

**LANGUAGES:** Spanish (Intermediate Working Proficiency)

**PROFESSIONAL ACTIVITIES & SERVICE**Professional Development

- **GeoCAFE Scholar, 2024-2025**  
*GeoCAFE is a National Science Foundation Research Coordination Network that brings together university faculty from non-medical related geoscience departments and medical and public health professionals.*
- **Reach the Decision Makers Fellowship, 2014-2015**  
*Program on Reproductive Health and the Environment, University of California, San Francisco fellowship designed to develop professional capacity for public policy making among health professionals.*

Peer-review of submitted manuscripts (editorial requests):

- Nature Communications
- Atmospheric Environment
- Environmental Research Letters
- American Journal of Obstetrics and Gynecology

Memberships

- American Geophysical Union
- Delta Omega Honor Society in Public Health, Omega Chapter, *Inductee Represents Top 10% of Graduating Student Body*, 2014
- Lead Poisoning Prevention and Healthy Homes Advisory Committee, District of Columbia Department of the Environment, 2013-2015

Grant review panels

- Data Visualization and Storytelling Competition, American Geophysical Union (AGU) and the National Aeronautics and Space Administration (NASA), 2020-2024
- Grants & Awards, National Environmental Education Foundation, 2017

Other service activities

- Junior League of Charlottesville, Vice President of Diversity Equity and Inclusion (2024-2026)