

## Susan Casper Anenberg

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### EDUCATION

- 2011 Ph.D. Environmental Science and Engineering, Environmental Policy, University of North Carolina Gillings School of Global Public Health.
- 2008 M.S. Environmental Science and Engineering, University of North Carolina.
- 2004 B.A. Biology, Environmental Science, Northwestern University.

### PROFESSIONAL EXPERIENCE

- 2016 - Associate Professor of Environmental and Occupational Health and of Global Health, George Washington University (2017 – current, with tenure 2021).  
Director of the GW Climate and Health Institute (2021 – current).  
Director of the MPH in Global Environmental Health (2017 – current).  
Co-designer of the MPH in Climate and Health (2020 – current).  
Professorial Lecturer in Environmental and Occupational Health (2016 – 2017).
- 2016 - 2020 Co-Founder and Principal, Environmental Health Analytics, LLC.
- 2014 - 2016 Deputy Managing Director for Recommendations, U.S. Chemical Safety Board.
- 2010 - 2014 Environmental Protection Specialist, U.S. Environmental Protection Agency.
- 2012 - 2013 Senior Advisor for U.S. Cookstoves Initiatives, U.S. Department of State.
- 2009 Science and Technology Policy Fellow, National Academy of Sciences.
- 2004 - 2006 Recommendations Specialist, U.S. Chemical Safety Board.

### HONORS

- 2020 Science and Technology Achievement Award, Level II, U.S. EPA.
- 2020 Arthur C. Stern Distinguished Paper Award for 2015 paper in *Journal of the Air & Waste Management Association*
- 2019 Reviewer of the Year 2018, *Environmental Research Letters*.
- 2018 Global asthma burden paper in *Environmental Health Perspectives* ranked in 99<sup>th</sup> percentile for online attention.
- 2018 Award for Outstanding Publication in the *Journal of Environmental and Resource Economics*.
- 2018 Exceptional Support to ORD Award, Multidisciplinary OAR and OGC Support for ISA Program, U.S. EPA.
- 2018 GW Research Days Sustainability Prize for Best Graduate Student poster (w/ Alex Lindahl).
- 2018 Editor's Citation for Excellence in Refereeing for *GeoHealth*.
- 2017 *Nature* diesel NO<sub>x</sub> article ranked in 99<sup>th</sup> percentile for online attention.
- 2016 Nominated to Climate and Clean Air Coalition Roster of Experts.
- 2015 Science and Technology Achievement Award, Level I, U.S. EPA.

2014	Science and Technology Achievement Award, Level II, U.S. EPA.
2014	Special Accomplishment Recognition Award, U.S. EPA.
2014	Director's Award for Leadership and Collaboration, U.S. EPA.
2013	Best Feature article in <i>Environmental Science and Technology</i> .
2012	Article featured in <i>Environmental Health Perspectives</i> Science Selections.
2010 - 2011	Presidential Management Fellowship, U.S. EPA.
2011	Special Act Award for Leadership and Collaboration, U.S. EPA.
2011	Academic Excellence Award, Delta Omega Honorary Society in Public Health.
2011	Harvard University Center for the Environment Fellowship (declined, 2011).
2010	Outstanding Student Paper Award, American Geophysical Union 2010 Fall Meeting.
2010	Elected to Sigma Xi.
2009	School-wide Student Travel Award, UNC School of Public Health.
2009	Student Achievement Award, UNC Environmental Science and Engineering.
2008	First place, student poster competition, 40th Annual Air Pollution Workshop.
2007 - 2008	Graduate Student Fellowship, UNC Institute for the Environment.

## CONTRACTS AND GRANTS

Total costs are shown (portion managed by Anenberg in parentheses, if different from total)

### Current

1. "Value of GeoXO atmospheric composition data for estimating air pollution-related health impacts", NOAA August 1, 2021 – July 31, 2024, PI: Susan Anenberg, \$599,416.
2. "Using satellite NO<sub>2</sub> observations for public health surveillance and environmental policy planning at global, national, and urban scales", NASA January 25, 2021 – January 24, 2025, PI: Susan Anenberg, \$831,993.
3. "Data-driven forecasts of hazardous air quality events over North America", NASA January 25, 2021 – January 24, 2025, PI: Daniel Tong (Anenberg is Co-Investigator), \$499,000 (\$145,691).
4. "Integrating satellites, ground monitoring, and modeling to estimate long-term NO<sub>2</sub> exposures and pediatric asthma impacts" Health Effects Institute, February 1, 2020 - January 31, 2023, PI: Susan Anenberg, \$125,000.
5. "ACRoBEAR Arctic Community Resilience to Boreal Environmental change: Assessing Risks from fire and disease" Belmont Forum, January 1, 2020 – December 31, 2023, PI: Stephen Arnold (Anenberg is Co-Investigator), \$2,182,800 (\$20,000).
6. "Methods and tools to integrate air quality and health into urban climate action planning" Wellcome Trust, November 1, 2019 – October 31, 2022, PI: Susan Anenberg, \$645,611.
7. "Using remote sensing and Earth system models to improve air quality and public health in megacities" NASA Award No. 80NSSC19K0193, September 1, 2018 – June 14, 2023, PI: Susan Anenberg, \$1,179,040.

## Completed

1. “Advancing GW cross-disciplinary collaboration in climate change and public health research” George Washington University Cross-Disciplinary Research Fund, July 1, 2020 – June 30, 2022, PI: Susan Anenberg, \$49,895.
2. “Inconsistent effects of social distancing on air quality in global cities: lessons for protecting near-term public health and designing longer-term urban transportation policies”, NASA Rapid Response and Novel Research in Earth Sciences (RRNES)”, June 1, 2020 – May 31, 2022, PI: Susan Anenberg, \$99,804.
3. “NASA Health and Air Quality Applied Science Team (HAQAST)”, NASA Award No. NNX16AQ26G, August 15, 2016 – August 14, 2021, PI: Daven Henze (Anenberg is Co-Investigator), \$438,143 (\$99,773).
4. “Integrating air quality and health impacts into C40 Climate Action Planning” Children’s Investment Fund Foundation/Clean Air Fund grant to C40 Cities, May 1, 2019 – March 31, 2021, PI: Susan Anenberg, \$370,000.
5. “Local-scale air pollution health impact assessment” Environmental Defense Fund, January 22, 2019 – December 31, 2020, PI: Susan Anenberg, \$147,230.
6. “Air quality and public health in urban climate action planning” George Washington University Milken Institute School of Public Health Pilot Grants Program, September 1, 2018 – August 31, 2020, PI: Susan Anenberg, \$49,961.
7. “NASA Health and Air Quality Applied Science Team – Tiger Team 2 Supplement” NASA Award No. NNX16AQ26G, September 1, 2019 – August 31, 2020, Co-Investigator, PI: Daven Henze (Anenberg is Project PI), \$65,000 (\$65,000).
8. “NASA Health and Air Quality Applied Science Team – Tiger Team 1 Supplement” NASA Award No. NNX16AQ26G, September 1, 2018 – August 31, 2019, PI: Susan Anenberg, \$110,000 (\$110,000).
9. “Further improving the ability of the BenMAP-CE tool to quantify the impacts to human health of aeroallergens and wildfires” Subcontract to Industrial Economics, EPA Contract EP-D-14-031, March 1, 2018 – September 30, 2019, PI: Susan Anenberg, \$76,751.
10. “Expert review to Air Pollutions Solutions document” US Agency for International Development/Social Solutions International, Inc., May 9, 2019 – June 7, 2019, PI: Susan Anenberg, \$3,400.
11. “Global burden of disease from transportation-related air pollution” Contract from International Council on Clean Transportation, May 1, 2018 – April 30, 2019, PI: Susan Anenberg, \$60,000.
12. “Further improving the ability of the BenMAP-CE tool to quantify the impacts to human health of aeroallergens and wildfires” Subcontract to Industrial Economics, EPA Contract EP-D-14-031, October 1, 2017 – May 31, 2018, PI: Susan Anenberg, \$11,470.

13. “Synthesize literature on household air pollution impacts on non-communicable diseases for Bloomberg Household Air Pollution Initiative project” Subcontract to Health Effects Institute on Bloomberg Philanthropies contract, April 17, 2017 – April 15, 2018, PI: Susan Anenberg, \$70,000.
14. “NASA Health and Air Quality Applied Science Team (HAQAST) – Tiger Team Supplement”, NASA Award No. NNX16AQ26G, August 15, 2017 – August 14, 2018, PI: Daven Henze (Anenberg is Co-Investigator), \$100,000 (\$10,000).
15. “Estimate air pollution, health, climate, and crop impacts of diesel vehicle NOx emissions and their mitigation in 11 major vehicle markets” Contract from the International Council on Clean Transportation, January 1, 2016 – June 30, 2017, PI: Susan Anenberg, \$84,000.
16. “Develop a Gold Standard Methodology to estimate and verify averted disability-adjusted life years (ADALYs) from reduced household air pollution exposure achieved by clean cookstove interventions” Contract from the Gold Standard Foundation, February 1, 2016 - December 31, 2016, PI: Susan Anenberg, \$36,625.
17. “Develop a proof-of-concept case study that uses EPA’s BenMAP-CE model to quantify and monetize impacts of climate-related changes in aeroallergen levels on respiratory health in the U.S.” Subcontractor to Industrial Economics, Inc., EPA Contract EP-D-14-032, July 11, 2016 – September 30, 2017, PI: Susan Anenberg, \$28,420.
18. “Review the health, climate, cryosphere, and environmental impacts of residential solid fuel combustion for cooking and heating, and draft white papers to inform the Combined Cooking and Heating/Coalstoves Summit” Subcontractor to International Cryosphere Climate Initiative, sponsored by Climate and Clean Air Coalition, October 1, 2016 – May 31, 2017, PI: Susan Anenberg, \$21,500.
19. “Estimate climate and health benefits of clean cookstove programs in Mozambique” Contract from World Bank, Contract No. 7179092, April 22, 2016 – June 30, 2016, PI: Susan Anenberg, \$18,750.
20. “Develop and finalize Science and Technical Advisory Panel document intended to assist GEF and implementing agencies incorporate measures that reduce black carbon in climate change mitigation projects and impact to reduce greenhouse gas emissions” Contract from United Nations Environment Programme, Contract No. 25806, November 1, 2014 – April 30, 2015, PI: Susan Anenberg, \$25,000.
21. “Develop and finalize publication on general principles for the proper conduct of air pollution health risk assessment” Contract from World Health Organization, Contract No. 201233406, May 15, 2015 – June 15, 2015, PI: Susan Anenberg, \$8,000.
22. “Develop a domestic heating component and funding proposal” Contract from the Climate and Clean Air Coalition, April 30, 2015 – September 30, 2015, PI: Susan Anenberg, \$10,200.

## PUBLICATIONS

### Peer-reviewed journal Articles

Name underlined = trainee of Dr. Anenberg; \* = Dr. Anenberg is corresponding or senior author

#### Submitted and in preparation

Nawaz, M.O., D.K. Henze, S.C. **Anenberg**, C. Braun, J. Miller, E. Pronk. A source apportionment and emission scenario assessment of PM<sub>2.5</sub> and ozone-related health impacts in G20 countries. In preparation.

O'Dell, K., S.C. **Anenberg**, et al. Health and economic benefits of air quality nowcasting with geostationary satellite data, in preparation.

Camilleri, S.F., A. Montgomery, M. Visa, J.L. Schnell, S.C. **Anenberg**, D.E. Horton. The air quality and health implications of transitioning 30% of the U.S. Midwest heavy-duty transport fleet from diesel to electric power. In preparation.

Ahn, D.Y., D.L. Goldberg, T. Coombes, S.C. **Anenberg**. Assessing the value of global downscaled gridded CO<sub>2</sub> emissions products for urban climate action planning: A case study for 78 global C40 cities. In preparation.

Hoffman-Hall, A., M.E. Gorris, S.C. **Anenberg**, H.A. Roop, B.G. McAdoo, M.A. Diaz, S.K. Fortner, R.C. Rehr, J.K. Dhaliwal, A.E. Bredder, D. Reano. A GeoHealth call to action: Moving beyond identifying environmental injustices to co-creating solutions. Under review.

Wei, J., J. Wang, Z. Li, S. Kondragunta, S. **Anenberg**, Y. Wang, H. Zhang, D. Diner, J. Hand, A. Lyapustin, R. Kahn, P. Colarco, A. da Silva, C. Ichoku. Wildfires downshift national and reverse regional long-term PM<sub>2.5</sub>, black carbon, and mortality burden trends in the United States. Under review.

Kerr, G., R.V. Martin, A. van Donkelaar, M. Brauer, K. Burkart, S. Wozniak, D.L. Goldberg, S.C. **Anenberg**. Increasing disparities in air pollution health burdens in the United States. Under review.

Malashock, D., M.N. DeLang, J.S. Becker, M.L. Serre, J.J. West, K.-L. Chang, O.R. Cooper, S.C. **Anenberg**\*. Trends in ozone concentration and attributable mortality for urban, peri-urban, and rural areas worldwide between 2000 and 2019: Estimates from global datasets. Under review.

Pozzer, A., S.C. **Anenberg**, R. Burnett, S. Dey, A. Haines, J. Lelieveld, S. Chowdhury. Mortality attributable to outdoor air pollution: a review of global estimates. In preparation.

Zhang, H., Z. Wei, B.H. Henderson, S.C. **Anenberg**, K. O'Dell, S. Kondragunta. Nowcasting applications of geostationary satellite hourly surface PM<sub>2.5</sub> data. Under review.

Cheeseman, M., B.F. Hotmann, S.C. **Anenberg**, M.J. Cooper, E.V. Fischer, M.S. Hammer, S. Magzamen, R.V. Martin, A. van Donkelaar, J. Vockens, J.R. Pierce. Disparities in air pollutants across racial, ethnic, and poverty groups at US public schools. Under review.

Badr, H.S., B.F. Zaitchik, G.H. Kerr, N.-L.H. Nguyen, Y.-T. Chen, P. Hinson, J.M. Colson, M.N. Kosek, E. Dong, H. Du, A. Mohegh, D.L. Goldberg, S.C. **Anenberg**, L.M. Gardner. Unified real-time environmental-epidemiological data for multiscale modeling of the COVID-19 pandemic. Under review.

- Apte, J.S., S Seraj, S.E. Chambliss, M. Hammer, S.C. **Anenberg**, A. van Donkelaar, R.V. Martin, M. Brauer. Air inequality: Global divergence in urban fine particulate matter. Under review.
- Larkin, A., A. Mohegh, D.L. Goldberg, M. Brauer, S.C. **Anenberg**, P. Hystad. A global spatial-temporal land use regression model for nitrogen dioxide air pollution. Under review.
- Henneman, L.R.F., M.M. Rasel, C. Choirat, S.C. **Anenberg**, C. Zigler. 22 years of coal power plant-related PM<sub>2.5</sub> exposure and inequities in the U.S. Under review.

#### Published or in press

1. von Salzen, K., C.HI Whaley, S.C. **Anenberg**, R. van Dingenen, Z. Klimont, R. Mahmood, S.R. Arnold, S. Beagley, R.-Y-Chien, J. Christensen, S. Eckhardt, A.M.L. Ekman, N. Evangeliou, G. Faluvegi, M.G. Flanner, J.S. Fu, M. Gauss, W. Gong, J.L. Hjorth, U. Im, S. Krishnan, K. Kupiainen, T. Kuhn, J. Langner, K.S. Law, L. Marelle, D. Olivie, T. Onishi, N. Oshima, A. D.-L. Palomares, V.-V. Paunu, Y. Peng, D. Plummer, L. Pozzoli, S. Rao-Skirbekk, J.-C. Raut, M. Sand, J. Schmale, M. Sigmond, M.A. Thomas, K. Tsigaridis, S.G. Tsyro, S.T. Turnock, M. Wang, B. Winter (2022) Policies to limit air pollution are key for successfully mitigating Arctic warming. *Communications Earth and Environment*, in press.
2. O'Dell, K., B. Ford, J. Burkhardt, S. Magzamen, S. **Anenberg**, J. Bayham, E.V. Fischer, J.R. Pierce (2022) Influence of wildfire smoke on indoor air quality in several western US cities. *Environmental Research: Health*, In press.
3. Kleiman, G., S. **Anenberg**, Z. Chafe, D.C. Appiah, T. Assefa, A. Bizberg, T. Coombes, D. Cuestas, M.I. de Casas, D. Henze, A. Kessler, I. Kheirbek, P. Kinney, M. Mahiatji, J.D. Marshall, S. Naidoo, N. Potwana, A. Rodriguez, C.W. Tessum, C. Thomas (2022) Enhanced integration of health, climate and air quality management planning at the urban-scale. *Frontiers in Sustainable Cities: Health and Cities*, 4:934672, <https://doi.org/10.3389/frsc.2022.934672>.
4. Tessum, M.W., S.C. **Anenberg**, Z. Chafe, D. Henze, G. Kleiman, I. Kheirbek, J.D. Marshall, C.W. Tessum (2022) Sources of ambient PM<sub>2.5</sub> in 96 global cities. *Atmospheric Environment*, 286, 119234, <https://doi.org/10.1016/j.atmosenv.2022.119234>.
5. Kerr, G.H., D.L. Goldberg, K.E. Knowland, C.A. Keller, D. Oladini, I. Kheirbek, L. Mahoney, Z. Lu, S.C. **Anenberg** (2022) Diesel passenger vehicle shares influenced COVID-19 changes in urban nitrogen dioxide air pollution. *Environmental Research Letters*, 17, 074010, <https://doi.org/10.1088/1748-9326/ac7659>.
6. Keswani, A., H. Akselrod, S.C. **Anenberg** (2022) Health and clinical impacts of air pollution and linkages with climate change. *New England Journal of Medicine – Evidence*, 1, 7, <https://doi.org/10.1056/EVIDra2200068>. (Invited)
7. Malashock, D., M. Delang, J. Becker, M. Serre, J. West, K.-L. Chang, O. Cooper, S.C. **Anenberg\*** (2022) Estimates of ozone concentrations and attributable mortality in urban, peri-urban and rural areas worldwide in 2019. *Environmental Research Letters*, 17, 5, <https://doi.org/10.1088/1748-9326/ac66f3>.

8. Johnson, L., P. Krisko, M. Malik, C. O'Donnell, N. Pendleton, D. Ahn, A. Bizberg, Z. Chafe, D. Kim, S. McCormick, S. Naidoo, S.C. **Anenberg\*** (2022) Environmental, health, and equity co-benefits in urban climate action plans: A descriptive analysis for 27 C40 member cities. *Frontiers in Sustainable Cities: Health and Cities*, 4:869203, <https://doi.org/10.3389/frsc.2022.869203>.
9. Cromar, K.R., S.C. **Anenberg**, J.R. Balmes, A.A. Fawcett, M. Ghazipura, J.M. Gohlke, M. Hashizume, P. Howard, E. Lavigne, K. Levy, J. Madrigano, J.A. Martinich, E.A. Mordecai, M.B. Rice, S. Saha, N.C. Scronick, F. Sekercioglu, E.R. Svendsen, B.F. Zaitchik, G. Ewart (2022) Global Health Impacts for Economic Models of Climate Change: A Systematic Review and Meta-Analysis. *Annals of the American Thoracic Society*, 19, 7, 10.1513/AnnalsATS.202110-1193OC.
10. Southerland, V.A., S.C. **Anenberg\***, M. Brauer, A. Mohegh, M. Hammer, R. Martin, A. van Donkelaar, J. Apte (2022) 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).
11. **Anenberg\***, S.C., A. Mohegh, D.L. Goldberg, G.H. Kerr, M. Brauer, K. Burkart, P. Hystad, A. Larkin, S. Wozniak, L. Lamsal (2022) Long-term trends in urban NO<sub>2</sub> concentrations and associated pediatric asthma cases: estimates from global datasets. *Lancet Planetary Health*, 6(1): E49-E58, [https://doi.org/10.1016/S2542-5196\(21\)00255-2](https://doi.org/10.1016/S2542-5196(21)00255-2).
12. Nawaz, O., S. **Anenberg**, D. Goldberg, D. Jo, B. Nault, J. Jimenez, H. Cao, C. Harkins, Z. Qu (2021) Impacts of sectoral, regional, species and day-specific emissions on air pollution and public health in Washington DC. *Elementa*, <https://doi.org/10.1525/elementa.2021.00043>.
13. Castillo, M.D., S.C. **Anenberg\***, Z.A. Chafe, R. Huxley, L.S. Johnson, I. Kheirbek, M. Malik, J.D. Marshall, S. Naidoo, M.L. Nelson, N.V. Pendleton, Y. Sun, H. van den Broek d'Obrenan, P.L. Kinney (2021) Quantifying the health benefits of urban climate mitigation actions: Current state of the epidemiological evidence and application in health impact assessments. *Frontiers in Sustainable Cities: Health and Cities*, 3, 768227, <https://doi.org/10.3389/frsc.2021.768227>.
14. Castillo, M.D., P.L. Kinney, V. Southerland, A. Arno, K. Crawford, A. van Donkelaar, M. Hammer, R.V. Martin, S.C. **Anenberg\*** (2021) Estimating intra-urban inequities in PM<sub>2.5</sub>-attributable health impacts: A case study for Washington, DC. *GeoHealth*, 5, 11, e2021GH000431, <https://doi.org/10.1029/2021GH000431>.
15. Goldberg, D.L., S.C. **Anenberg**, L.N. Lamsal, Z. Lu, E.E. McDuffie, S.J. Smith, D.G. Streets (2021) Urban NO<sub>x</sub> emissions around the world declined faster than anticipated between 2005 and 2019. *Environmental Research Letters*, 16, 11, <https://doi.org/10.1088/1748-9326/ac2c34>.
16. Laughner, J.L., J.L. Neu, D.S. Schimel, P.O. Wennberg, K. Barsanti, K.W. Bowman, A. Chatterjee, B. Croes, H. Fitzmaurice, D.K. Henze, J. Kim, E.A. Kort, Z. Liu, K. Miyazaki, A.J. Turner, S. Anenberg, J. Avise, H. Cao, D. Crisp, J.A. de Gouw, A. Eldering, J.C. Fyfe, D.L. Goldberg, K.R. Gurney, S. Hasheminassab, F. Hopkins, C. Ivey, D.B.A. Jones, J. Liu, N.S. Lovenduski, R.V. Martin, G.A. McKinley, L. Ott, B. Poulter, M. Ru, S.P. Sander, N. Swart, Y.L. Yung, Z.-C. Zeng (2021) Societal shifts due to COVID-19 reveal large-scale

- complexities and feedbacks between atmospheric chemistry and climate change. *Proceedings of the National Academy of Sciences*, 118 (46) e2109481118; <https://doi.org/10.1073/pnas.2109481118>.
17. **Anenberg\***, S.C., G.H. **Kerr**, D.G. Goldberg (2021) Leveraging satellite data to address air pollution inequities. *EM Magazine*, September 2021, [https://blogs.gwu.edu/sanenberg/files/2021/10/Anenberg\\_EM.pdf](https://blogs.gwu.edu/sanenberg/files/2021/10/Anenberg_EM.pdf).
  18. Goldberg, D.G., **S.C. Anenberg**, G.H. **Kerr**, Z. Lu, D.G. Streets (2021) TROPOMI: A revolutionary new satellite instrument measuring NO<sub>x</sub> air pollution. *EM Magazine*, September, 2021, [https://blogs.gwu.edu/sanenberg/files/2021/10/Goldberg\\_EM.pdf](https://blogs.gwu.edu/sanenberg/files/2021/10/Goldberg_EM.pdf).
  19. **Kerr**, G.H., D.L. Goldberg, S.C. **Anenberg\*** (2021) COVID-19 lockdowns reveal persistent disparities in nitrogen dioxide pollution levels. *Proceedings of the National Academy of Sciences*, <https://doi.org/10.1073/pnas.2022409118>.
  20. Malley, C.S., W.K. Hicks, J.C.I. Kuylenstierna, E. Michaelopoulou, A. Molotoks, J. Slater, C.G. Heaps, S. Ulloa, J. Veysey, D.T. Shindell, D.K. Henze, O. Nawaz, S.C. **Anenberg**, B. Mantlana, T.P. Robinson (2021) Integrated assessment of global climate, air pollution, and dietary, malnutrition and obesity health impacts of food production and consumption between 2014 and 2018. *Environmental Research Communications*, <https://doi.org/10.1088/2515-7620/ac0af9>.
  21. Gorris, M.E. S.C. **Anenberg**, D.L. Goldberg, G.H. **Kerr**, J.D. Stowell, D. Tong, B.F. Zaitchik (2021) Shaping the future of science: COVID-19 highlighting the importance of GeoHealth. *GeoHealth*, <https://doi.org/10.1029/2021GH000412>.
  22. Neumann, J.E., M. Amend, S. **Anenberg**, P.L. Kinney, M. Sarofim, J. Martinich, J. Lukens, J. Xu, H. Roman (2021) Estimating PM<sub>2.5</sub>-related premature mortality and morbidity associated with future wildfire emissions in the western U.S. *Environmental Research Letters*, <https://doi.org/10.1088/1748-9326/abe82b>.
  23. Goldberg, D., S. **Anenberg**, G.H. **Kerr**, A. **Mohegh**, Z. Lu, D.G. Streets (2021) TROPOMI NO<sub>2</sub> in the United States: A detailed look at the annual averages, weekly cycle, effects of temperature, and correlation with surface NO<sub>2</sub> concentrations. *Earth's Future*, <https://doi.org/10.1029/2020EF001665>.
  24. **Southerland**, V.A., S.C. **Anenberg\***, M. Harris, J. Apte, Hystad, A. van Donkelaar, R. Martin, M. Beyers, A. Roy (2021) Assessing the distribution of air pollution health risks within cities: a neighborhood-scale analysis leveraging high resolution datasets in the Bay Area, California. *Environmental Health Perspectives*, <https://doi.org/10.1289/EHP7679>.
  25. Holloway, T., D. Miller, S. **Anenberg**, M. Diao, B. Duncan, A. Fiore, D. Henze, J. Hess, P. Kinney, Y. Liu, J. Neu, S. O'Neill, R.B. Pierce, A. Russell, D. Tong, J.J. West, M. Zondlo (2021) Satellite monitoring for air quality and health. *Annual Review of Biomedical Data Science*, <https://doi.org/10.1146/annurev-biodatasci-110920-093120>.
  26. **Mohegh**, M., D. Goldberg, P. Achakulwisut, M. Brauer, P. Hystad, S. **Anenberg\*** (2021) Sensitivity of estimated NO<sub>2</sub>-attributable pediatric asthma incidence to grid resolution and urbanicity. *Environmental Research Letters*, <https://doi.org/10.1088/1748-9326/abce25>.
  27. **Anenberg\***, S., **Haines**, S., E. **Wang**, P. Kinney, N. Nassikas (2020) Synergistic health effects of air pollution, temperature, and pollen exposure: A systematic review of



- epidemiological evidence. *Environmental Health*, <https://doi.org/10.1186/s12940-020-00681-z>.
28. Hess, J.J., N. Ranadive, C. Boyer, L. Aleksandrowicz, S. **Anenberg**, K. Anan, K. Belesova, M.L. Bell, S. Bickersteth, K. Bowen, M. Burden, D. Campbell-Lendrum, E. Carlton, G. Cisse, F. Cohen, H. Dai, A. Dangour, P. Dasgupta, H. Frumkin, P. Gong, R.J. Gould, A. Haines, S. Hales, I. Hamilton, T. Hasegawa, M. Hashizume, Y. Honda, D.E. Horton, A. Karambelas, H. Kim, S.E. Kim, P.L. Kinney, I. Kone, K. Knowlton, J. Lelieveld, V.S. Limaye, Q. Liu, L. Madaniyazi, M.E. Martinez, D.L. Mauzerall, J. Milner, T. Neville, M. Nieuwenhuijsen, S. Pachauri, F. Perera, H. Pineo, J.V. Remais, R.K. Saari, J. Sampedro, P. Scheelbeek, J. Schwartz, D. Shindell, P. Shyamsundar, T.J. Taylor, C. Tonne, D. van Vuuren, C. Wang, N. Watts, J.J. West, P. Wilkinson, S.A. Wood, J. Woodcock, A. Woodward, Y. Xie, Y. Zhang, K. Ebi (2020) Guidelines for modeling and reporting health effects of climate change mitigation actions. *Environmental Health Perspectives*, doi:10.1289/EHP6745.
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### Public Comments and Testimony

**Anenberg, S., M. Brauer, L. Goldman, P. Hystad, G. Kerr (2022)** Comments on EPA Proposed Rule and Related Materials for Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards. Available at: <https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0055-1220>.

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## MEDIA HIGHLIGHTS

- 2022 [BBC Newshour](#), [USA Today](#), [Independent](#), [Chicago Sun-Times](#), [The Hill](#), [Yahoo News](#), [Washington Post](#), [GW Magazine](#), [WNYC/Gothamist](#), [Nature](#)
- 2021 [WTOP](#), [WAMU/dcist](#), [NASA Earth Observatory](#), [Popular Science](#), [Chemical and Engineering News](#)
- 2020 [CityLab](#), [Scripps channels](#), [WTOP](#), [National Geographic](#), [Washington Post](#), [NPR](#), [Yale Climate Connections](#)
- 2019 [Guardian](#), [US News & World Report](#), [BBC Radio 4](#), [Press Association](#), [Popular Science](#), [Le Monde](#)
- 2018 [Earth.com](#), [Smithsonian Magazine](#), [NASA](#), [Environmental Health News](#)
- 2017 [Guardian](#), [Economic Times](#), [LA Daily News](#), [Scientific American](#), [Jakarta Post](#), [New Scientist](#)

## PRESENTATIONS

### Conference and Workshop Presentations

- Anenberg, S.C.** (2022) Integrating satellites, ground monitoring, and modeling to estimate long-term NO<sub>2</sub> exposures and associated pediatric asthma impacts, Health Effects Institute Annual Meeting, June 25, Washington, DC.
- Anenberg, S.C.** (2022) From space to the Street: Tracking health impacts and disparities of traffic-related air pollution using satellite NO<sub>2</sub>, June 14, NOAA UV-VIS-NIR workshop, virtual.
- Anenberg, S.C.** (2022) From space to the Street: Using satellite data to address environmental injustice, June 2, NASA Health and Air Quality Applied Sciences Team, Houston.
- Anenberg, S.C.** (2022) From space to the Street: Using satellite data to address environmental injustice, May 12, Advancing Energy Justice: Tools for Justice40 and Equitable Deep Decarbonization, virtual.
- Anenberg, S.C.** and K. O'Dell (2022) Value of GeoXO atmospheric composition data for estimating air pollution-related health impacts, March 28, 2022, NOAA Pathfinder Initiative Town Hall.
- Johnson, L., S.C. **Anenberg**, G. Kerr, Q. Xiao (2022) Satellite data for environmental justice: Advancing EJ mapping tools and building a new community of practice. National Environmental Justice Conference, March 11, Washington, DC.
- Malashock, D., S.C. **Anenberg**, M. DeLang, J. Becker, M. Serre, J. West, K.-L. Chang, O. Cooper (2021) Estimates of ozone concentrations and attributable mortality in urban, peri-



- urban and rural areas worldwide in 2019. American Geophysical Union Fall Meeting, December 15, New Orleans.
8. Ahn, D., Goldberg, D., T. Oda, S.C. **Anenberg** (2021) Investigating CO<sub>2</sub> emissions trends for cities globally: The effectiveness of urban climate actions in reducing greenhouse gas emissions and improving air quality. American Geophysical Union Fall Meeting, December 15, New Orleans.
  9. O'dell, K., B. Ford, J. Burkhardt, S.C. **Anenberg**, J. Bayham, E. Fischer, J. Pierce (2021) Influence of wildfire smoke on indoor air quality in several western US cities. American Geophysical Union Fall Meeting, December 15, New Orleans.
  10. Nawaz, M., D. Henze, S.C. **Anenberg**, C. Braun, J. Miller (2021) Comparing domestic and extra-regional contributions to pollutant exposures and health impacts in G20 countries through a novel adjoint modeling approach. American Geophysical Union Fall Meeting, December 15, New Orleans.
  11. Kerr, G., D. Goldberg, M. Harris, A. Roy, S.C. **Anenberg** (2021) Nitrogen dioxide-attributable pediatric asthma in the United States: Burden trends, and environmental justice concerns. American Geophysical Union Fall Meeting, December 15, New Orleans.
  12. Martin, G., S.C. **Anenberg**, M. Pescador Jimenez, P. Kinney (2021) Quantifying the public health benefits of expanding green and blue spaces in urban areas. American Geophysical Union Fall Meeting, December 15, New Orleans.
  13. Goldberg, D., S.C. **Anenberg**, G. Kerr, E. McDuffie, S. Smith, Z. Lu, D. Streets (2021) Reconciling differences between satellite-inferred NO<sub>x</sub> emissions and inventories in global cities. American Geophysical Union Fall Meeting, December 15, New Orleans.
  14. Kerr, G. D. Goldberg, I. Kheirbek, L. Mahoney, D. Oladini, S.C. **Anenberg** (2021) The COVID-19 natural experiment: Insights into trends drivers, and impacts of nitrogen dioxide pollution. American Geophysical Union Fall Meeting, December 15, New Orleans.
  15. Southerland, V., V. Parasram, S.C. **Anenberg** (2021) Temporal trends in land use and environmental justice near hazardous industrial facilities across the US. American Geophysical Union Fall Meeting, December 15, New Orleans.
  16. **Anenberg**, S.C. (2021) Temporal trends in urban air pollution and associated disease burdens globally. American Geophysical Union Fall Meeting, December 15, New Orleans.
  17. **Anenberg**, S.C. (2021) Public health impacts of environmental pollution. International Conference on Sustainable Energy-Water-Environment Nexus in Desert Climate 2021 (ICSEWEN21), November 24.
  18. **Anenberg**, S.C. (2021) Cambio climático, contaminación atmosférica y salud humana: De la investigación a la política, Calidad del Aire y Salud Pública - CASAP VIII, November 4.
  19. **Anenberg**, S.C. (2021) Using satellite data to address air pollution and climate change: Bridging science to policy, NASA Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) 2<sup>nd</sup> Applications Workshop, September 15, virtual.
  20. **Anenberg**, S.C. (2021) Climate change, air pollution, and public health impacts: Past, present, and future, Meteorology and Climate – Modeling for Air Quality Conference (MAC-MAQ), September 14.
  21. **Anenberg**, S.C. (2021) Overview of the NASEM workshop on leveraging advances in remote geospatial technologies to inform precision environmental health decisions, National Institute for Environmental Health Sciences, June 15, virtual.

22. **Anenberg**, S.C. and I. Kheirbeck (2021) Methods and tools to integrate air quality and health into urban climate action planning. Wellcome Trust Our Planet Our Health Knowledge Sharing Seminar: Policy Engagement, May 21, virtual.
23. **Anenberg**, S.C. (2021) Using satellite remote sensing to estimate air pollution health impacts in cities worldwide. American Thoracic Society Annual Meeting, May 17, virtual.
24. Marwah, H., N. Rosseau, S. Mangipudi, C. Ward, H. Akselrod, R. Harold, S. **Anenberg**, A. Keswani (2021) Investigating air pollution as a contributor to health disparities during the COVID-19 pandemic. 2021 Clinical Climate Change Conference, Jan. 8.
25. **Anenberg**, S.C., M. Castillo, D. Goldberg, D. Henze, P. Kinney, D. Malashock, J. Marshall, A. Moheg, O. Nawaz, V. Southerland, C. Tessum, M. Brauer, Z. Chafe, M. Harris, C. Heaps, I. Kheirbek, G. Kleiman, J. Kuylenstierna, C. Malley, A. Roy, C. Thomas (2021) Recent Advances in Integrating Climate Change, Air Quality, and Public Health into Urban Decision-Making. American Meteorological Society, Jan. 15 (Invited Core Science Keynote)
26. Kerr, G., D. Goldberg, S.C. **Anenberg** (2021) Impact of Coronavirus Lockdowns on NO<sub>2</sub>: Successes and Challenges for Environmental Inequality in the United States. American Meteorological Society Annual Meeting, Jan. 11.
27. Goldberg, D., S.C. **Anenberg**, et al. (2021) Top-down NO<sub>x</sub> Emissions Estimates for 50 Global Cities during the Last 15 Years. American Meteorological Society Annual Meeting, Jan. 11.
28. von Salzen, K., S. C. Anenberg, S. Arnold, S. Eckhardt, A. Ekman, M. G. Flanner, M. Gauss, U. Im, Z. Klimont, S. Krishnan, K. Kupiainen, R. Mahmood, D. Olivié, N. Oshima, L. Pozzoli, S. Rao, M. Sand, M. Sigmond, K. Tsigaridis, S. Tsyro, S. Turnock, R. van Dingenen, C. Whaley, and B. Winter (2021) Synergistic and competing influences of air pollutants on air quality and Arctic climate. American Meteorological Society Annual Meeting, Jan. 11.
29. Bowman, K.W., K. Miyazaki, S. **Anenberg**, et al. (2020) Global air quality responses to the COVID-19 pandemic. American Geophysical Union Fall Meeting, Dec. 8.
30. Goldberg, D.L., S. **Anenberg**, D. Griffin, C.A. McLinden, G.H. Kerr, Z. Lu, D.G. Streets (2020) Using TROPOMI and re-analysis meteorology to disentangle the impact of the COVID-19 lockdowns on urban NO<sub>2</sub> from natural variability. American Geophysical Union Fall Meeting, Dec. 7.
31. Castillo, M., P. Kinney, V. Southerland, R. Martin, A. van Donkelaar, S. **Anenberg** (2020) Using satellite remote sensing to estimate intra-urban PM<sub>2.5</sub> health-related inequalities and environmental injustices in Washington, DC. American Geophysical Union Fall Meeting, Dec. 16.
32. Malashock, D., S. **Anenberg**, M. DeLang, J. Becker, M.L. Serre, J.J. West, K-L Chang, O.R. Cooper (2020) Evaluating ozone trends and attributable mortality in urban areas worldwide. American Geophysical Union Fall Meeting, Dec. 16.
33. **Anenberg**, S., D.L. Goldberg, G.H. Kerr, Z. Lu, D. Griffin, C.A. McLinden, B.N. Duncan, J. Miller, R.J. Minjares, J. Dreessen (2020) Inconsistent NO<sub>2</sub> drops during COVID-19 lockdowns: lessons for protecting near-term public health and designing longer-term environmental policies. American Geophysical Union Fall Meeting, December 10. (Invited)
34. Nawaz, M.O., D. Henze, D. Goldberg, S. **Anenberg**, D. Jo, B. Nault, J.L. Jimenez, H. Cao, C. Harkins, Z. Qu (2020) Characterizing the regional, sectoral and species-specific sources of pollution exposure and its associated health impacts in urban environments: case studies in Washington, D.C. and Santiago, Chile. American Geophysical Union Fall Meeting, Dec. 14.

35. Kerr, G.H., D.L. Goldberg, S. **Anenberg** (2020) Environmental injustices associated with coronavirus-related changes in NO<sub>2</sub> pollution, American Geophysical Union Fall Meeting, Dec. 14.
36. **Anenberg**, S.C., D. Goldberg, G. Kerr (2020) NO<sub>2</sub> changes during COVID-19 lockdowns in North America, IGAC/AMIGO Workshop: Changes in Atmospheric Composition During the COVID-19 Lockdowns, November 3. (Invited)
37. Goldberg, D., S. Anenberg, G. Kerr, Z. Lu, C. McLinden, D. Griffin (2020) Disentangling the impact of COVID-19 lockdowns on urban NO<sub>2</sub> from natural variability, Community Modeling and Analysis System (CMAS) Conference, virtual, October 29.
38. Castillo, M., S. **Anenberg**, V. Southerland, A. Van Donkelaar, R. Martin (2020) Using satellite remote sensing to estimate intra-urban disparities in air pollution health impacts in Washington, DC. International Society for Environmental Epidemiology, virtual, August 24-27.
39. Nelson, M., M. Castillo, V. Southerland, S. **Anenberg** (2020) Nature and well-being: Estimating the effects of exposure to green space on health disparities across Washington, DC. International Society for Environmental Epidemiology, virtual, August 24-27.
40. Rao, S., S. **Anenberg**, R. Van Dingenen, A. Diz-Lois Palomares, Z. Klimont, K. Von Salzen (2020) Air quality and health impacts of integrated global greenhouse gas and air pollution emission scenarios. International Society for Environmental Epidemiology, virtual, August 24-27.
41. Southerland, V., S. **Anenberg**, A. Roy, M. Harris (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, August 24-27.
42. Malashock, D., S. **Anenberg**, K-L Chang, O. Cooper, J. West (2020) Estimates of ozone-attributable burden of disease in urban areas worldwide. International Society for Environmental Epidemiology, virtual, August 24-27.
43. Mohegh, A., D.L. Goldberg, S. **Anenberg** (2020) The influence of spatial resolution on NO<sub>2</sub>-attributable pediatric asthma burden estimates at the global, national, and urban scale. International Society for Environmental Epidemiology, virtual, August 24-27.
44. Burkart, K., S. Wozniak, S.C. **Anenberg**, P. Hystad, D. Goldberg, A. Larkin, A. Mohegh, M. Brauer (2020) Evaluating the strength of evidence between long-term NO<sub>2</sub> exposure and pediatric asthma incidence for potential inclusion into the Global Burden of Disease Study. International Society for Environmental Epidemiology, virtual, August 24-27.
45. **Anenberg**, S., M. Brauer, P. Hystad, K. Burkart, D.L. Goldberg, A. Larkin, A. Mohegh, S. Wozniak, B. Duncan, L. Lamsal (2020) Long-term trends in NO<sub>2</sub> exposure and associated pediatric asthma impacts in urban areas worldwide. International Society for Environmental Epidemiology, virtual, August 24-27.
46. **Anenberg**, S. (2020) Air pollution, COVID-19, and public health: what we know and don't know. Japan Geophysical Union and American Geophysical Union Joint Meeting, July 13.
47. **Anenberg**, S. (2020) Inconsistent effects of COVID-19 lockdowns on NO<sub>2</sub> pollution in cities globally: Evidence from satellite remote sensing and chemical transport modeling. National Academies Committee on Seismology and Geodynamics, July 14.
48. **Anenberg**, S., M. Brauer, D. Goldberg (2020) Taking a wider view of NO<sub>2</sub> pollution: Estimating NO<sub>2</sub>'s health impacts from local to global scales. NASA Health and Air Quality Applied Science Team 2020 Webinar Series, March 3.

49. Goldberg, D., S. **Anenberg**, A. Mohegh, Z. Lu, D. Streets (2020) Applications of satellite NO<sub>2</sub> data. Air and Waste Management Regional Air Quality Symposium, College Park, MD, Feb. 13.
50. **Anenberg**, S. (2020) Recent advances in assessing health impacts of air pollution within cities worldwide. American Meteorological Society, Boston, MA, Jan. 15.
51. Roy, A., V. Southerland, M. Harris, S. **Anenberg** (2020) Disparities in the health burden of air pollution on the hyperlocal scale: Case study for the California Bay Area. American Meteorological Society, Boston, MA, Jan. 15.
52. **Anenberg**, S. (2020) The U.S. Clean Air Act: Successes and challenges for air quality and health. National Council on Science and the Environment, Washington, DC, Jan. 6.
53. Southerland, V.T., S.C. **Anenberg**, M. Harris, A. Roy, J. Apte, P. Hystad, A. Vodonos, J. Schwartz (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, Dec. 19.
54. Goldberg, D.L., S. **Anenberg**, A. Mohegh, B. de Foy, D. Griffin, C. McLinden, B. Duncan, N. Krotkov, L. Lamsal, F. Liu, O. Nawaz, D. Henze, Z. Lu, D. Streets (2019) High-resolution NO<sub>2</sub> exposure estimates and top-down NO<sub>x</sub> emissions using OMI NO<sub>2</sub> and TROPOMI NO<sub>2</sub>. American Geophysical Union, San Francisco, CA, Dec. 19.
55. Nawaz, M.O., D.K. Henze, S.C. **Anenberg**, D. Goldberg, Z. Qu (2019) Source attribution of PM<sub>2.5</sub> and O<sub>3</sub> concentrations and health outcomes from 2010 and 2011 in Washington D.C. using sensitivity analyses in the GEOS-Chem adjoint model. American Geophysical Union, San Francisco, CA, Dec. 19.
56. Xu, J., R.V. Martin, A. White, X. Yue, L.J. Mickley, D. Henze, J. Luken, M. Amend, H. Roman, J. Neumann, S.C. **Anenberg**, A. Crimmins (2019) Uncertainties in future western U.S. wildfires and their impacts on air quality. American Geophysical Union, San Francisco, CA, Dec. 19.
57. Mohegh, A., S. **Anenberg**, D. Goldberg (2019) Influence of spatial resolution on NO<sub>2</sub>-attributable asthma incidence. American Geophysical Union, San Francisco, CA, Dec. 19.\*
58. **Anenberg**, S. (2019) Health impacts of transportation-related air pollution. EDF Emerging Issues Workshop – Leveraging High-Resolution Transportation Data to Create Healthier Cities, New York, NY, Nov. 21.
59. **Anenberg**, S. (2019) Nexus of extreme heat, air quality, climate, and health. National Oceanic and Atmospheric Administration Annual Earth System Science and Modeling Community Workshop, Silver Spring MD, Nov. 19.
60. Goldberg, G., Z. Lu, D. Streets. S. **Anenberg**, P. Achakulwisut, A. Mohegh, V. Southerland, B. Duncan, L. Lamsal, N. Krotkov, F. Liu, D. Griffin, C. McLinden, B. de Foy (2019) Estimating air pollution emissions, exposures, and public health impacts in cities worldwide. New Applications in the Use of Satellite Data Monitoring for Population Health, Huntsville, AL, October 10.
61. Goldberg, G., Z. Lu, D. Streets. S. **Anenberg**, P. Achakulwisut, A. Mohegh, V. Southerland, B. Duncan, L. Lamsal, N. Krotkov, F. Liu, D. Griffin, C. McLinden, B. de Foy (2019) Policy-relevant applications of satellite data: Estimating air pollution emissions, exposures, and public health impacts in cities worldwide. NASA Health and Air Quality Applied Science Team 6<sup>th</sup> Meeting, Pasadena, CA, July 10.
62. Nawaz, O., D.K. Henze, C.S. Malley, J.C.I. Kuylenstierna, H.W. Vallack, Y. Davila, S.C. **Anenberg**, S. Terry, A. Curry-Brown, N. Fann, E. Lefevre, C. Heaps, S. Penn, H. Roman, J.

- Neumann (2019) Source attribution of climate and health impacts from aerosols. 9<sup>th</sup> International GEOS-Chem Meeting, Cambridge, MA, May 6.
63. Achakluwisut, P., M. Brauer, P. Hystad, S.C. **Anenberg** (2019) Global, national, and urban burdens of pediatric asthma incidence attributable to ambient NO<sub>2</sub> pollution. Health Effects Institute Annual Meeting, Seattle, Washington, May 6.
  64. Achakulwisut, P., S.C. **Anenberg**, J.E. Neumann, S.L. Penn, A. Crimmins, N. Fann, J. Martinich, L.J. Mickley (2019) Sensitivity of airborne dust to drought in the US Southwest: what are the implications for public health under future climate change? American Meteorological Society, Phoenix, Arizona, Jan. 9.
  65. Achakulwisut, P., S.C. **Anenberg**, M. Brauer, D. Moran, P. Hystad, C. Kalman, D. Henze, J. Apte (2019) Using satellite-derived data to estimate the burden of disease from ambient air pollution in cities worldwide, American Meteorological Society, Phoenix, Arizona, Jan. 8.\*
  66. **Anenberg**, S.C. (2019) The HAQAST Indicators Tiger Team: Using remote sensing to track air quality and climate change effects, NASA Health and Air Quality Applied Science Team 5<sup>th</sup> Meeting, Phoenix, Arizona, Jan. 3.
  67. Henze, D.K., C. Malley, J.C.I. Kuylenstierna, R.W. Pinder, S. Terry, H. Vallack, C. Heaps, E. Lefevre, S. **Anenberg**, S.L. Penn, A. Curry-Brown, N. Fann, J. Neumann, H. Roman, K. Hicks, Y. Davila, E.A. Marais, F. Lacey (2018) Linking global-scale and urban-scale integrated assessment tools, American Geophysical Union Fall Meeting, Washington, DC, Dec. 12.
  68. Kinney, P., Y. Liu, S. **Anenberg**, M.Z. Al-Hamdan, F. Freedman, M. Castillo (2018) Developing high resolution particulate matter surfaces for use in community health assessments, American Geophysical Union Fall Meeting, Washington, DC, Dec. 14.
  69. Achakulwisut, P., S.C. **Anenberg**, J.E. Neumann, S.L. Penn, A. Crimmins, N. Fann, J. Martinich, L.J. Mickley (2018) Linkages between drought and dust in the US Southwest: Implications for air quality and public health under future climate change, American Geophysical Union Fall Meeting, Washington, DC, Dec. 10.
  70. Neumann, J.E., S. **Anenberg**, K.R. Weinberger, M. Amend, S. Gulati, A. Crimmins, H. Roman, N. Fann, P.L. Kinney (2018) Estimates of the present and future asthma emergency department visits associated with exposure to oak, birch, and grass pollen in the United States, American Geophysical Union Fall Meeting, Washington, DC, Dec. 13.
  71. **Anenberg**, S., P. Achakulwisut, M. Brauer, D. Henze, P. Kinney, C. Kalman (2018) Using satellite-derived surface concentrations to estimate the mortality associated with ambient air pollution in cities worldwide, American Geophysical Union Fall Meeting, Washington, DC, Dec 12.
  72. **Anenberg**, S. (2018) From science to policy: Estimating the health impacts of air pollution to inform decision-making. American Geophysical Union Fall Meeting, Washington, DC, Dec 11.
  73. Achakulwisut, P. and S. **Anenberg** (2018) Linkages between drought and dust in the US Southwest: Implications for air quality and public health under future climate change, U.S. Air Quality Seminars and Discussion, Washington, DC, Oct 9.
  74. **Anenberg**, S. (2018) NASA HAQAST Hi-Res Tiger Team: Neighborhood-scale air pollution health impact assessment, NASA Health and Air Quality Applied Science Team webinar, Washington, DC, Sept. 28.

75. **Anenberg, S.**, H.A. Roman, M. Amend (2018) Future wildfires and air pollution-related health damages, International Society for Environmental Epidemiology, Ottawa, Canada, August 27.
76. **Anenberg, S.** and A. Lindahl (2018) Neighborhood scale health impacts from PM<sub>2.5</sub> in four United States metropolitan areas, International Society for Environmental Epidemiology, Ottawa, Canada, August 27.
77. **Anenberg, S.** (2018) Using satellite-derived PM<sub>2.5</sub> to estimate neighborhood scale health impacts, NASA Health and Air Quality Applied Science Team 4, Madison, WI, July 17.
78. **Anenberg, S.** (2018) Alaskan Pollution and Chemical Analysis workshop: Approaches to atmospheric health effect/impact studies, Alaskan Pollution and Chemical Analysis workshop, Fairbanks, AK, May 14.
79. Schmale, J., K. Law, S. Arnold, T. Thorp, K. Pratt, W. Simpson, J. Mao, S. **Anenberg**, A. Evgrafova, P. Tejsner, A. Rautio (2018) Impacts of future Arctic air pollution: Designing a transdisciplinary research agenda for sustainable development, Polar 2018 Conference, Davos, Switzerland, June 15-26.
80. **Anenberg, S.** and R. Doherty (2018) The global burden of ambient air pollution on asthma. Planetary Health Annual Meeting, Edinburgh, UK, May 29.
81. **Anenberg, S.**, H.A. Roman, M. Amend (2018) Future wildfires and air pollution-related health damages, Planetary Health Annual Meeting, Edinburgh, UK, May 29.
82. Bangoura, A. and S. **Anenberg** (2018) Impact of water, sanitation, and hygiene interventions on environmental enteric dysfunction in children in developing countries: A systematic review, George Washington University Research Days, Washington, DC, April 11.
83. **Anenberg, S.** and A. Lindahl (2018) Neighborhood scale health impacts from PM<sub>2.5</sub> in four United States metropolitan areas, George Washington University Research Days, Washington, DC, April 11. *Awarded best poster in Sustainability category*
84. Koziomko, J. and S. **Anenberg** (2018) Recycled tire crumb rubber playgrounds or athletic fields and air pollution hazards to children: A systematic review, George Washington University Research Days, Washington, DC, April 11.
85. Val Martin, M., B. Ford, S. Zelinsky, C.L. Heald, F. Li, D.M. Lawrence, S. **Anenberg**, E.V. Fischer, J.R. Pierce (2017) Quantifying future US PM<sub>2.5</sub> and associated health effects due to changes in wildfires, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. 11-15.
86. Chafe, Z., S. **Anenberg**, Z. Klimont, K. Kupiainen, J. Lewis, J. Metcalfe, P. Pearson (2017) Mitigation of short-lived climate pollutants from residential coal heating and combined heating/cooking stoves: Impacts on the cryosphere, policy options, and co-benefits, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. 11-15.
87. Law, K., J. Schmale, S. **Anenberg**, S. Arnold, W.R. Simpson, J. Mao, S. Starkweather (2017) Local air pollution in the Arctic: Knowledge gaps, challenges, and future directions, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. 11-15.
88. Achakulwisut, P., L.J. Mickley, L. Shen, S. **Anenberg** (2017) What controls springtime fine dust variability in the western United States? Implications for air quality and public health risks under future climate change, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. 11-15.
89. Henze, D.K., Y. Davila, S. **Anenberg**, C. Malley, J.C.I. Kuylenstierna, H. Vallack, M.R. Ashmore, M. Turner, K. Sudo, J.E. Jonson, M. Chin, R.M. Doherty (2017) Is ozone, rather than PM<sub>2.5</sub>, actually the largest contributor to premature deaths associated with trans-

- continental transport of air pollution? American Geophysical Union Fall Meeting, New Orleans, LA, Dec. 11-15.
90. Kupiainen, K., N. Karvosenoja, S. **Anenberg** (2017) Workshop on Climate change, air pollution and health: Strengthening the evidence base for policy making in Nordic countries, Oslo, Norway, Dec. 1.
  91. **Anenberg**, S. (2017) Estimating the global burden of ambient air pollution on asthma using satellite-derived exposure estimates, NASA Health and Air Quality Applied Science Team Meeting, Palisades, NY, Nov. 28, 2017.
  92. **Anenberg**, S. (2017) Climate and respiratory health – the health implications of air pollution and climate change, Climate and Respiratory Health – Focus Asthma Workshop at The Collider, Asheville, NC, Nov. 9. (*Invited keynote*)
  93. **Anenberg**, S. (2017) Air pollution health impact assessment: Previous work and considerations for Arctic-specific analyses, air Pollution in the Arctic: Climate, Environment and Societies (PACES) 2<sup>nd</sup> Workshop, Victoria, Canada, June 27.
  94. **Anenberg**, S.C., J. Miller, R. Minjares, L. Du, D. Henze, F. Lacey, C. Malley, L. Emberson, V. Franco, Z. Klimont, C. Heyes (2017) Impacts and mitigation of excess diesel NO<sub>x</sub> emissions in 11 major vehicle markets, Health Effects Institute Annual Meeting, Alexandria, VA, Apr. 29 – May 2. (*Invited*)
  95. **Anenberg**, S.C. (2017) Global ICCT scenarios for road transport... and other ongoing activities, UNECE Convention on Long-Range Transboundary Air Pollution, Task Force on Integrated Assessment Modeling, Geneva, Switzerland, May 2. (*Invited*)
  96. Lacey, F., C. Weidinmyer, S. **Anenberg**, D. Henze (2017) Arctic temperature impacts from regional and national home heating emissions, Climate and Clean Air Coalition Summit on Black Carbon and Other Emissions from Residential Coal Heating Stoves and Combined Cooking + Heating Stoves, Warsaw, Poland, May 30.
  97. **Anenberg**, S.C., K. Weinberger, H. Roman, J. Neumann, A. Crimmins, N. Fann, J. Martinich, P. Kinney (2017) Impacts of oak pollen on allergic asthma in the United States and potential influence of future climate change, Planetary Health Annual Meeting, Boston, MA, Apr. 26.
  98. **Anenberg**, S.C., E. Carter, Z. Chafe, Z. Klimont, F. Lacey, J. Metcalfe, P. Pearson (2017) Combined heating and cooking stoves and coal heating stoves: Global air quality, health, climate, cryosphere, and environmental impacts, International Conference on Arctic Science: Bringing Knowledge to Action, Washington, DC, Apr. 25.
  99. **Anenberg**, S.C. (2017) Metrics for accounting for the health impacts of black carbon and methane interventions, Climate and Clean Air Coalition Workshop on Metrics for Evaluating and Reporting on Black Carbon and Methane Emissions, Ottawa, Canada, Mar. 16. (*Invited*)
  100. **Anenberg**, S.C. (2017) Estimating the global health benefits of emissions mitigation: Example of diesel NO<sub>x</sub>, NASA Health and Air Quality Applied Science Team 2<sup>nd</sup> meeting, Seattle, WA, Feb. 28.
  101. Henze, D.K., S. **Anenberg**, J. Miller, V. Franco, L. Du, L. Emberson, F. Lacey, C. Malley, R. Minjares (2016) Integrated assessment of health, crop, and climate impacts of mitigating excess diesel NO<sub>x</sub> emissions in 11 major vehicle markets, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 11-16.
  102. **Anenberg**, S., J. Miller, F. Lacey, D. Henze, V. Franco, L. Du, R. Minjares, C. Malley, L. Emberson (2016) Health and climate impacts in and from selected G-20 countries using

- realistic diesel emissions under present and future scenarios, International Global Atmospheric Chemistry Project Science Conference, Breckenridge, CO, Sept. 26-30.
103. **Anenberg**, S., J. Miller, V. Franco, L. Du, F. Lacy, D. Henze, C. Malley, R. Minjares (2016) Impacts and mitigation of excess diesel NO<sub>x</sub> emissions in 11 major vehicle markets, 17<sup>th</sup> IUAPPA World Clean Air Congress and 9<sup>th</sup> CAA Better Air Quality Conference, Busan, South Korea, Aug. 29 – Sept. 2.
104. Fann, N., S. **Anenberg**, J. Kuylensstierna, H. Vallack (2014) New tools for estimating the human health benefits of reducing short-lived climate pollutants, Better Air Quality Conference, Oral presentation, Colombo, Sri Lanka, Nov. 19-21.
105. West, J., S.J. Smith, R. Silva, V. Naik, Z. Adelman, M.M. Fry, S. **Anenberg**, Y. Zhang, L.W. Horowitz, J.-F. Lamarque, L.K. Emmons (2012) Co-benefits of Global Greenhouse Gas Mitigation for Future Air Quality and Human Health via Two Mechanisms, American Geophysical Union (AGU) Fall Meeting 2012, Oral presentation, San Francisco, CA, Dec. 3-7.
106. Silva, R.A., S.C. **Anenberg**, J.J. West, J.-F. Lamarque, D. Shindell, D. Bergmann, T.K. Bernsten, P. Cameron-Smith, W.J. Collins, S.J. Ghan, B. Josse, T. Nagashima, V. Naik, D. Plummer, J.M. Rodriguez, S. Szopa, G. Zeng (2012) The impact of projected future air pollutant emissions on global human mortality, American Geophysical Union (AGU) Fall Meeting 2012, Oral presentation, San Francisco, CA, Dec. 3-7.
107. Akhtar, F., B. Henderson, S. Napelenok, D. Henze, S. **Anenberg**, J. Langstaff, R. Pinder (2012) Quantifying the sensitivity of U.S. ozone concentrations to domestic vs. international emissions through coupled GEOS-Chem Adjoint and CMAQ DDM source-receptor modeling, Community Modeling and Analysis System (CMAS) Conference, Oral presentation, Durham, NC, Oct. 15-17.
108. Silva, R.A., S.C. **Anenberg**, J.J. West, J.-F. Lamarque, D. Shindell, D. Bergmann, T.K. Bernsten, P. Cameron-Smith, W.J. Collins, S.J. Ghan, B. Josse, T. Nagashima, V. Naik, D. Plummer, J.M. Rodriguez, S. Szopa, G. Zeng (2012) The impact of projected future air pollutant emissions on global human mortality, Community Modeling and Analysis System (CMAS) Conference, Poster presentation, Durham, NC, Oct. 15-17.
109. Zhang, Y., J.J. West, M. Fry, Z. Adelman, R. Silva, S. Smith, V. Naik, S. **Anenberg**, L.W. Horowitz, J.-F. Lamarque (2012) Effects of changes in emissions and climate change on global air quality: a study of the air quality co-benefits of GHGs mitigation, Community Modeling and Analysis System (CMAS) Conference, Poster presentation, Durham, NC, Oct. 15-17.
110. Silva, R.A., S.C. **Anenberg**, J.J. West, J.-F. Lamarque, D. Shindell, D. Bergmann, T.K. Bernsten, P. Cameron-Smith, W.J. Collins, S.J. Ghan, B. Josse, T. Nagashima, V. Naik, D. Plummer, J.M. Rodriguez, S. Szopa, G. Zeng (2012) The impact of projected future air pollutant emissions on global human mortality, International Society for Environmental Epidemiology, Poster presentation, Columbia, SC, August 27-30.
111. West, J.J., S.J. Smith, R.A. Silva, V. Naik, Z. Adelman, M.M. Fry, S. **Anenberg**, Y. Zhang, L.W. Horowitz, J.-F. Lamarque, L. Emmons (2012) Co-benefits of global greenhouse gas mitigation for future air quality and human health via two mechanisms, International Society for Environmental Epidemiology, Poster presentation, Columbia, SC, August 27-30.
112. **Anenberg**, S.C., B. Henderson, C. Fulcher, J. Langstaff, K. Wesson, S. Dutton, F. Akhtar, Z. Pekar, N. Fann, P. Dolwick, B. Hubbell, L. Zhang (2012) Contributions of international anthropogenic emissions to ozone-related mortality in the United States,



- International Society for Environmental Epidemiology, Poster presentation, Columbia, SC, August 27-30.
113. Kuylenstierna, J.C.I., D. Shindell, Z. Klimont, R. van Dingenen, M. Amann, S. **Anenberg**, E. Vignati, F. Raes, H. Vallack, K. Hicks, L. Emberson, D. Streets, M. Williams, R. Mills, K. Oanh, L. Cifuentes, V. Ramanathan (2012) Achieving multiple climate and clean air benefits: Mitigating short-lived climate forcers, Planet Under Pressure Conference, Poster presentation, London, UK, March 26-29.
114. **Anenberg**, S.C., with UNEP/WMO Black Carbon and Tropospheric Ozone Assessment Team (2011) Health co-benefits of mitigating short-lived climate forcers, AGU Fall Meeting, Oral presentation, San Francisco, CA, December 4-9. (*Invited*).
115. **Anenberg**, S.C., J.J. West, M. Schulz, H. Bian, T. Diehl, R. Doherty, A. Fiore, P. Hess, J.E. Jonson, R. Park, D. Shindell, T. Takemura (2011) Impacts of intercontinental transport of aerosols on human mortality, AGU Fall Meeting, Poster presentation, San Francisco, CA, December 4-9.
116. West, J.J. S.J. Smith, R.G. Silva, Z. Adelman, M. Fry, S. **Anenberg**, L.W. Horowitz, J.-F. Lamarque, L. Emmons (2011) Co-benefits of global greenhouse gas mitigation for air quality and human health via two mechanisms, AGU Fall Meeting, Poster presentation, San Francisco, CA, December 4-9.
117. Silva, R., Z. Adelman, M. Fry, S.C. **Anenberg**, J.J. West (2011) The contribution of anthropogenic emissions sectors to the global burden of human mortality due to ozone and particulate matter air pollution, 10th Annual Community Modeling and Analysis System (CMAS) Conference, Poster presentation, Durham, NC, Oct. 24-26.
118. **Anenberg**, S.C., K. Talgo, P. Dolwick, C. Jang, S. Arunachalam, J.J. West (2010) Sensitivity of surface air quality and global mortality to global, regional, and sectoral black carbon emission reductions, AGU Fall Meeting, Oral presentation, San Francisco, CA, December 13-17. (*Outstanding Student Paper Award*).
119. **Anenberg**, S.C., K. Talgo, P. Dolwick, C. Jang, S. Arunachalam, J.J. West (2010) Sensitivity of surface air quality and global mortality to global, regional, and sectoral black carbon emission reductions, 9th Annual CMAS Conference, Poster presentation, Durham, NC, October 11-13.
120. **Anenberg**, S.C., K. Talgo, J.J. West (2010) Impacts of global and US black carbon emission reductions on human mortality, AAAR Specialty Conference on Air Pollution and Health, Poster presentation, San Diego, CA, March 22-26.
121. **Anenberg**, S.C., L.W. Horowitz, D.Q. Tong, J.J. West (2010) Estimating the global burden of mortality due to outdoor air pollution using atmospheric modeling, AAAR Specialty Conference on Air Pollution and Health, Oral presentation, San Diego, CA, March 22-26.
122. **Anenberg**, S.C., J.J. West, A.M. Fiore, D.A. Jaffe, M.J. Prather, D. Bergmann, C. Cuvelier, F.J. Dentener, B.N. Duncan, M. Gauss, P. Hess, J.E. Jonson, A. Lupu, I.A. MacKenzie, E. Marmer, R.J. Park, M. Sanderson, M. Schultz, D.T. Shindell, S. Szopa, M. Garcia Vivanco, O. Wild, and G. Zeng (2010) Impacts of intercontinental ozone pollution on human mortality, HTAP 2010 Assessment Workshop, Poster presentation, Chapel Hill, NC, March 1-2.
123. **Anenberg**, S.C., J.J. West, A.M. Fiore, D.A. Jaffe, M.J. Prather, D. Bergmann, C. Cuvelier, F.J. Dentener, B.N. Duncan, M. Gauss, P. Hess, J.E. Jonson, A. Lupu, I.A. MacKenzie, E. Marmer, R.J. Park, M. Sanderson, M. Schultz, D.T. Shindell, S. Szopa, M.

Garcia Vivanco, O. Wild, and G. Zeng (2009) Impacts of intercontinental ozone pollution on human mortality, 8th Annual CMAS Conference, Poster presentation, Durham, NC, October 19-21.

124. **Casper, S., J.J. West, L.W. Horowitz, D.Q. Tong (2008)** The global burden of anthropogenic ozone and particulate matter air pollution on premature human mortality, Joint ISEE/ISEA Conference, Poster presentation, Pasadena, CA, October 12-16.
125. **Casper, S., J.J. West, L.W. Horowitz, D.Q. Tong (2008)** The global burden of anthropogenic ozone and particulate matter air pollution on premature human mortality, 7th Annual CMAS Conference, Oral presentation, Raleigh, NC, October 6-8.
126. **Casper, S., J.J. West, L.W. Horowitz, D.Q. Tong (2008)** The global burden of anthropogenic ozone and particulate matter air pollution on premature human mortality, LRTAP Task Force on Hemispheric Transport of Air Pollution, Atmospheric Chemistry, Climate, and Transboundary Air Pollution Workshop, Poster presentation, Washington, DC, June 9.
127. **Casper, S. J.J., West, L.W. Horowitz, D.Q. Tong (2008)** The global burden of anthropogenic ozone and particulate matter air pollution on premature human mortality, 40th Annual Air Pollution Workshop, Poster presentation, Raleigh, NC, April 8. (*First place award for best student poster*).

#### **Other Invited Presentations**

128. **Anenberg, S.C. and G. Kerr (2022)** Integrating satellite data into EJ mapping tools: Focus on NO<sub>2</sub>, U.S. Environmental Protection Agency, April 27.
129. **Anenberg, S.C. (2022)** Mitigating climate change, urban air pollution, and associated health inequities: Challenges and opportunities. New Hampshire Healthcare Workers for Climate Action, March 21.
130. **Anenberg, S.C. (2022)** Mitigating climate change, urban air pollution, and associated health inequities: Challenges and opportunities. Boston University School of Public Health, March 3.
131. **Anenberg, S.C. (2022)** Climate change, air pollution, and public health: Bridging science to policy, Part 2, Data to inform decision-making. Grand Rounds in Environmental Health and Engineering. Johns Hopkins University, March 11.
132. **Anenberg, S.C. (2022)** Urban air quality and co-benefits of climate action plans. NASA Goddard Climate, Air Quality, and Health working group, February. 22.
133. **Anenberg, S.C. (2022)** Climate change, air pollution, and public health: Bridging science to policy, Part 1. John C. and Susan S.G. Wierman Lecture Series in Air Quality Data Analysis. Johns Hopkins University, February 10.
134. **Anenberg, S.C. (2022)** Air quality, health, and equity in the Washington, DC region. Clean Air Partners, February 9.
135. **Anenberg, S.C. (2021)** Using satellite data to address air pollution and climate change: Bridging science to policy. George Washington University Geography Department, Dec. 10.
136. **Anenberg, S.C. (2021)** Inconsistent NO<sub>2</sub> drops during COVID-19 lockdowns: Lessons for protecting near-term public health and designing longer-term environmental policies. CDC Zoonoses and One Health Update calls, November 18.
137. **Anenberg, S.C. (2021)** Inconsistent NO<sub>2</sub> drops during COVID-19 lockdowns: Lessons for protecting near-term public health and designing longer-term environmental policies. Royal Meteorological Society, November 18.

138. **Anenberg, S.C.** (2021) Air quality, health, and equity in the Washington, DC region. Metropolitan Washington Air Quality Committee, Air and Climate Public Advisory Committee, November 15.
139. **Anenberg, S.C.** (2021) Air quality, health, and equity in the Washington, DC region. Metropolitan Washington Air Quality Committee, October 27.
140. **Anenberg, S.C.** (2021) Air pollution and health in Arctic Council Member and Observer Countries. AMAP Side Event at COP26, Glasgow, UK, November 3.
141. **Anenberg, S.C.** (2021) Methods and tools to integrate air quality and health into urban climate action planning. InterMET webinar, October 27.
142. **Anenberg, S.C.** (2021) Climate change, air pollution, and public health impacts: From science to policy. Boston University Environmental Health seminar series, October 22.
143. **Anenberg, S.C.** (2021) Climate change, air pollution, and public health impacts: From science to policy. University of Maryland, September 23.
144. **Anenberg, S.C.** (2021) Climate change, air pollution, and public health impacts: Past, present, and future. National Institute of Allergy and Infectious Disease Grand Rounds, September 18.
145. Southerland, V.A., S.C. **Anenberg**, M. Harris, J. Apte, P. Hystad, A. van Donkelaar, R.V. Martin, M. Beyers, A. Roy (2021) Assessing the distribution of air pollution health risks within cities: a neighborhood-scale analysis leveraging high resolution datasets in the Bay Area, California. NCAR, June 25.
146. **Anenberg, S.** (2021) NOAA GeoXO Atmospheric Composition Town Hall, April 29.
147. **Anenberg, S.** (2021) Climate change, air pollution, and public health: Past, present, and future. Georgia Tech, April 8.
148. **Anenberg, S., D. Goldberg, G. Kerr** (2021) Inconsistent NO<sub>2</sub> drops during COVID-19 lockdowns: lessons for protecting near-term public health and designing longer-term environmental policies. American Geophysical Union Fall Meeting, March 16.
149. **Anenberg, S.** (2021) Leveraging satellite-derived air quality datasets for environmental health applications NASA ACCP Air Quality and Health Workshop, March 16.
150. **Anenberg, S.** (2021) George Washington University Milken Institute School of Public Health Dean's Seminar Series, March 22.
151. **Anenberg, S.** (2021) Air pollution and health in cities: Recent advances and lessons from COVID-19 lockdowns. Air and Waste Management Association Mid-Atlantic Region, February 24.
152. **Anenberg, S.** (2021) Climate change, air pollution, and public health: Past, present, and future. Frontiers in Atmospheric Chemistry Seminar Series, January 26.
153. **Anenberg, S.** (2020) Climate change, air quality, and public health in cities. Urban Land Institute, December 18.
154. **Anenberg, S., and D. Goldberg** (2020) Air quality and health in U.S. cities: Lessons from COVID-19 restrictions. Ozone Transport Commission, November 18.
155. **Anenberg, S.** (2020) Air pollution and health in cities: Recent advances and lessons from COVID-19 lockdowns. Maryland Department of Environment, November 5.
156. **Anenberg, S.** (2020) Clean Air for All: 50 Years of the Clean Air Act, virtual, September 29.
157. Filippelli, G. and S. **Anenberg** (2020) GeoHealth: The impact of climate change on health and society, Wiley Science talks with the American Geophysical Union, virtual, September 22.

158. **Anenberg, S.** (2020) Methods and tools to assess air pollution health impacts in cities. Environmental Defense Fund Workshop “Air Pollution Health Risk Assessments for Decision Making: A Focus on Cities”, virtual, September 8.
159. **Anenberg, S.** (2019) Extreme weather, chemical facilities, and vulnerable communities in the U.S. Gulf Coast: A disastrous combination; Sensitivity of Airborne Dust to Drought in the US Southwest: What Are the Implications for Public Health under Climate Change? The Collaborative on Health and the Environment, virtual, Nov. 20.
160. Southerland, V, S. **Anenberg** A. Roy, M. Harris (2019) Hyper-local health impact assessment of NO<sub>2</sub>, PM<sub>2.5</sub>, and BC in the Bay Area, California. Environmental Defense Fund, Nov. 14.
161. **Anenberg, S.** (2019) Mitigating global ozone air pollution: challenges and opportunities. World Resources Institute Greening Governance Seminar Series, Washington DC, October 30.
162. Achakulwisut, P., M. Brauer, P. Hystad, S. **Anenberg** (2019) Global, national, and urban burdens of pediatric asthma incidence attributable to ambient NO<sub>2</sub> pollution, Health Effects Institute, Washington, DC, April 5.
163. **Anenberg, S.** (2019) Using satellite-derived pollution concentrations to estimate the health impacts of air pollution worldwide, NASA Goddard, College Park, MD, April 22.
164. **Anenberg, S.**, J. Miller, D. Henze, R. Minjares (2019) A global snapshot of the air pollution-related health impacts of transportation sector emissions in 2010 and 2015, Health Effects Institute, Washington, DC, March 1.
165. **Anenberg, S.** (2018) Global health impacts of ambient air pollution: Integrating atmospheric science, public health, and environmental policy, Dalhousie University, Halifax, Canada, Sept. 26.
166. **Anenberg, S.** (2018) Using satellite remote sensing to estimate the global burden of ambient air pollution on asthma, NASA Goddard, Greenbelt, MD, Feb. 8.
167. **Anenberg, S.** (2017) The global burden of ambient air pollution on asthma, George Washington University, Milken Institute School of Public Health, Washington, DC, Oct. 16.
168. **Anenberg, S.** (2017) Global public health benefits of mitigating air pollution and climate change, George Washington University, Milken Institute School of Public Health, Washington, DC, Mar. 29.
169. Kleiman, G., S. **Anenberg** (2017) The multiple benefits of clean cooking in Mozambique, World Bank, Washington, DC, Mar. 9.
170. **Anenberg, S.** (2016) Estimating the global health benefits of air pollution mitigation, Health Effects Institute, Boston, MA, Feb. 17.
171. **Anenberg, S.C.** (2016) Impacts and mitigation of excess diesel NO<sub>x</sub> emissions in 11 major vehicle markets, International Council on Clean Transportation, Washington, DC.
172. **Anenberg, S.C.** (2016) Estimating the global health benefits of air pollution mitigation, National Center for Atmospheric Research (NCAR) Advanced Study Program Summer Colloquium, Boulder, CO, Jul. 25.
173. **Anenberg, S.** (2014) What tools/models are available to assess the health risks of air pollution at various scales (local, national, regional, global)? United Nations Economic Commission for Europe Convention on Long Range Transboundary Air Pollution Task Force on Health, Bonn, Germany, May 14.

174. **Anenberg, S.** (2014) What tools/models are available to assess the health risks of air pollution at various scales (local, national, regional, global)? World Health Organization Expert Meeting on Health Risk Assessment, Bonn, Germany, May 12.
175. **Anenberg, S.C.** (2012) Using atmospheric models to estimate air pollution mortality, University of Maryland, Earth System Science Interdisciplinary Center, Washington, DC, Oct. 15.
176. **Anenberg, S.C.** (2012) Health co-benefits of mitigating near-term climate change through black carbon and methane emission controls, Woodrow Wilson International Center for Scholars, China Environment Forum, Washington, DC, Mar. 14.
177. **Anenberg, S.C.** (2012) Health co-benefits of mitigating near-term climate change, Pacific Northwest National Laboratory, Joint Global Change Research Institute, Washington, DC, Mar. 8.
178. **Anenberg, S.C.** (2012) Health co-benefits of mitigating near-term climate change, Science and Technology Policy Institute, Washington, DC, Mar. 2.
179. **Anenberg, S.C.** (2012) Health co-benefits of mitigating short-lived climate forcers, University of Maryland, Dept. of Atmospheric and Oceanic Sciences, Washington, DC, Feb. 24.
180. **Anenberg, S.C.** (2012) The role of science in the EPA Air Program, American Association for the Advancement of Science, Washington, DC, Sept. 18.
181. **Anenberg, S.C.** (2012) Opportunities for interagency collaboration to move U.S. cookstove research forward, National Science and Technology Council, Air Quality Research Subcommittee, Washington, DC, Nov. 15.
182. **Anenberg, S.C.** (2011) Health impacts of air pollution: thinking globally, U.S. Environmental Protection Agency Office of Air Quality Planning and Standards International Seminar, Research Triangle Park, NC, Apr. 5.
183. **Anenberg, S.C.** (2011) Health impacts of black carbon mitigation, Project Surya Briefing Meeting, Washington, DC, Jun. 14.

## SERVICE AND PROFESSIONAL ACTIVITIES

### University service

#### *George Washington University*

- 2022 - Elected Senator, Faculty Senate
- 2022 - Member, GWU Faculty Senate Fiscal Planning and Budget Committee
- 2020 - 2022 Member, Advisory Council on Research

#### *GWU School of Public Health*

- 2017 - Member, Admissions Committee
- 2018 - 2021 Co-Chair, Admissions Committee
- 2019 - 2020 Member, Research Committee
- 2019 Member, Search Committee for Director of Admissions
- 2018 Member, Global Health Initiatives Working Group of SPH Strategic Planning Task Force

#### *GWSPH Environmental and Occupational Health Department*

- 2020 - Member, PhD Admissions Committee

- 2022 - Member, Search Committee for tenure-track faculty member  
2019 - 2020 Chair, Search Committee for non-tenure track faculty member

### **Leadership in profession**

- 2022 - President-Elect, GeoHealth section of the American Geophysical Union  
2020 - 2021 Secretary, GeoHealth section of the American Geophysical Union

### **Professional societies**

American Geophysical Union  
American Meteorological Society  
International Society for Environmental Epidemiology  
Earth Science Women's Network

### **Editorial peer review activities**

- 2018 - Editor, *GeoHealth*  
2019 - 2020 Guest Editor, *Proceedings of the National Academy of Sciences* (two papers)  
2019 - Founding Associate Editor, *Frontiers in Sustainable Cities: Health and Cities*  
2009 - Ad-hoc peer reviewer for academic journals: *Science*; *Nature*; *Nature Climate Change*; *Nature Geoscience*; *Lancet Planetary Health*; *Proceedings of the National Academy of Sciences*; *Aerosol and Air Quality Research*; *American Journal of Public Health*; *Atmosphere*; *Atmospheric Chemistry and Physics*; *Atmospheric Environment*; *Atmospheric Science Letters*; *Challenges in Sustainability*; *Climate Change Letters*; *Energy Policy*; *Energy, Sustainability, and Society*; *Environment International*; *Environmental Health Insights*; *Environmental Health Perspectives*; *Environmental Modelling and Software*; *Environmental Monitoring and Assessment*; *Environmental Pollution*; *Environmental Research*; *Environmental Research Letters*; *Environmental Science and Pollution Research*; *Environmental Science and Technology*; *Environmental Science and Technology Letters*; *Frontiers: Health and Cities*; *GeoHealth*; *Geophysical Research Letters*; *Global Environmental Change*; *International Journal of Environmental Research and Public Health*; *Israel Journal of Health Policy Research*; *Journal of Building Engineering*; *Journal of Exposure Science and Environmental Epidemiology*; *Journal of Pollution Effects and Control*; *Journal of Renewable and Sustainable Energy*; *Journal of Research Reports in Clinical Cardiology*; *Journal of Urban Climate*; *North Carolina Medical Journal*; *PLOS Medicine*; *PLOS ONE*; *Risk Analysis*; *Science of the Total Environment*; *Sustainability*; *Trials*  
2011 - Ad-hoc peer reviewer for research grants: Government of the Hong Kong Special Administrative Region (2011), Carolinas Integrated Sciences and Assessments (2012), Canada Foundation for Innovation (2016), Research Council of Norway grant review panel (2016), National Science Foundation grant review panel (2017), Academia Sinica (2017), French National Research Agency (2018), NASA ROSES Disasters-18 (2018), NOAA Climate Program Office (2020), UK Research and Innovation Strategic Priorities Fund (2020), Vienna Science and Technology Fund (2020), NSF ad-hoc proposal review (2021).

2016 - Ad-hoc peer reviewer for books and reports: Intergovernmental Panel on Climate Change (2013), Heinz Endowments (2016), Climate and Clean Air Coalition (2018), United Nations Environment Programme (2018), Johns Hopkins University Press (2018), U.S. Environmental Protection Agency (2018).

### **National and international scientific advisory committees**

2021 - Author, Transportation chapter of the 5<sup>th</sup> National Climate Assessment  
 2021 - Member, U.S. EPA Science Advisory Board  
 Member, Climate Change Science Committee (2021 - present)  
 Chair, Heavy-Duty Vehicle Proposed Rule Panel (2022 – present)  
 2021 - Member, U.S. EPA Clean Air Act Advisory Committee  
 2021 - Member, National Academies Committee to Advise the U.S. Global Change Research Program (USGCRP)  
 2021 - Member, World Health Organization Global Air Pollution and Health Technical Advisory Group  
 Expert Working Group on Exposure Assessment  
 Expert Working Group on Climate Change and Air Pollution  
 2021 - Member, National Academies Committee to Advise the U.S. Global Change Research Program, 2021-current.  
 2018 - 2021 Member, U.S. EPA Clean Air Act Advisory Committee’s Mobile Source Technical Review Subcommittee  
 2021 Chair, National Academies Planning Committee for “Leveraging Advances in Remote Geospatial Technologies to Inform Precision Environmental Health Decisions – A Workshop”, April 14-15, 2021  
 2020 Member, National Academies Board on Atmospheric Sciences and Climate, Planning Committee for “Wildland Fires: Towards Improved Understanding and Forecasting of Air Quality Impacts Workshop”, September 23-25, 2020  
 2018 - 2021 Member, U.S. Representative, and Chapter Lead Author, Arctic Council’s Arctic Monitoring and Assessment Programme Expert Group on Short-Lived Climate Forcers

### **Leadership in organizing scientific workshops and conferences**

2021 Session Co-chair, Geospatial Data for Exposure and Risk Modeling: Approaches and Applications, American Geophysical Union Fall Meeting 2021 (w/ Kyle Messier, John Balbus, Ben Zaitchik)  
 2021 Session Co-chair, Climate change and health equity: Action at the intersection of social justice and health disparities (w/ Morgan Gorris, Heidi Roop)  
 2020 Session chair, late breaking session on COVID-19 and Earth and Space Science, American Geophysical Union Fall Meeting 2020  
 2020 Organizer, International Society for Environmental Epidemiology Symposium: Beyond Temperature: Assessing the global burden of disease from climate change, ISEE Annual Meeting, Virtual, 2020 (w/ Kris Ebi and John Balbus).  
 2019 Organizer and Host, Science to Action Roundtable to Advance Joint Air Quality and Climate Change Mitigation in Cities Worldwide, Washington, DC  
 2016 - 2017 Organizer, Steering Committee, Climate and Clean Air Coalition summit on combined cooking and heating stoves, May 2017, Warsaw, Poland

- 2014 Organizer, Steering Committee, World Health Organization workshop: “*Methods and tools for assessing the health risks of air pollution at local, national and international level*”
- 2014 Moderator, President's Task Force Climate Change and Children's Health Expert Consultation, Washington, DC

**Participation in expert panels and other professional service**

- 2019 - Member, Lancet Countdown U.S. Working Group
- 2016 - Member, Climate and Clean Air Coalition Roster of Experts
- 2016 - Collaborator, Institute for Health Metrics and Evaluation, Global Burden of Disease Study
- 2018 - Judge, Outstanding Student Presentation Awards, American Geophysical Union Fall Meeting
- 2017 Invited Participant, Climate and Clean Air Coalition Science Advisory Panel Expert Workshop on “Metrics for Evaluation and Reporting on Black Carbon and Methane Interventions” Ottawa, Canada
- 2014 - 2015 Member, Black Carbon Expert Panel, Gold Standard Foundation
- 2011 - 2014 RFP author/reviewer, EPA Science to Achieve Results (STAR) Research Grants
- 2012 Invited expert panelist, U.S. EPA National Center for Environmental Assessment Consultation for a Multipollutant Science Assessment on Climate
- 2011 Member, Global Alliance for Clean Cookstoves Monitoring and Evaluation Working Group, Climate Working Group, Health Working Group

**Community service**

- 2021 - Maryland Responds Medical Reserve Corps
- 2018 - Board Member, Clean Air Partners, Washington DC

**TEACHING AND MENTORING**

**Teaching**

**Courses taught (all at GWU)**

- 2018 - Course Director, PubH 6140, Global Climate Change and Air Pollution: Science, Impacts, and Solutions (2 credits)  
Summer 2018 (5 students), Summer 2019 (12 students), Summer 2020 (7 students), Summer 2021 (14 students), Summer 2022 (13 students)
- 2017 Course Instructor, PubH 6128, Global Environmental and Occupational Health (2 credits)  
Session leader Spring I 2017 (14 students)
- 2016 - 2017 Course Instructor PubH 6004, Environmental and Occupational Health in a Sustainable World (2 credits)  
Session leader Spring II (14 students), Summer (14 students), Fall 2016 (14 students); Spring I (14 students), Spring II (14 students), Summer 2017 (14 students)

**Guest lectures and panels in undergraduate and graduate courses (at GWU unless noted)**



- 2022 GW Grand Rounds in Internal Medicine, with Anjeni Keswani and Hana Akselrod, “The health effects of climate change and air pollution: What clinicians need to know”
- 2022 PubH 6259, Epidemiologic Surveillance in Public Health
- 2021 PubH 8406, Advanced Topics in Global Health: Doctoral Seminar Part 1
- 2021 PubH 8412, Environmental and Occupational Health Research and Practice
- 2021 Introduction to Environmental and Occupational Health, Univ. of Washington  
Guest lecture on air pollution and climate change
- 2020 - current PubH 3131: Epidemiology: Measuring Health and Disease  
Guest lecture on environmental health and climate change
- 2019 School of Medicine & Health Sciences PPS-1: Fundamentals of Patients, Populations, and Systems  
Guest panel on climate change and health
- 2019 Elliott School of International Affairs IAFF 6138, Climate Change and Sustainable Development  
Guest lecture on climate change and health
- 2019 PubH 6121, Environmental and Occupational Epidemiology  
Guest lecture on air pollution exposure science

**Guest lecture recordings for online MPH courses (all at GWU)**

- 2019 PubH 6011, Environmental and Biological Foundations of Public Health  
Recorded three video lectures
- 2019 PubH 6136, Environmental and Occupational Epidemiology  
Recorded video lecture
- 2017 PubH 6128, Global Environmental and Occupational Health  
Recorded two video lectures

**Advising and Mentoring**

**Research Scientist**

Dan Goldberg (2019-2021, now Research Assistant Professor), Gaige Kerr (postdoc 2020-2021, research scientist 2021-current)

**Post-doctoral**

Pattanun (Ploy) Achakulwisut (2017-2019), Arash Mohegh (2018-2021), Kate O’Dell (2021-current), Doyeon Ahn (2021-current), Tess Carter (2022-current)

**Doctoral**

Chair: Veronica (Tinney) Southerland (2018-2022), Daniel Malashock (2018-current), Greta Martin (2020-current), Soo-Yeon Kim (2022-current)

Committee member: Omar Nawaz (University of Colorado – Boulder, 2021-current)

Reader: Natalie Haley (2021)

**Research Associate**

Maria Castillo (2019-2021), Xander Nogueira (2021-2022)

**Masters**

Graduate Research Assistants supervised (all EOH at GWU, unless otherwise noted):

Alex Lindahl (2017-2018), Casey Kalman (2018-2019), Shannon Haines (2019-2020), Julia Weil (2020), Lauren Johnson (2020-2022), Nick Pendleton (2020-2022), Nigel Martis (GWU Data Sciences, 2021-2022), Perrin Krisko (2021-2022), Catherine O'Donnell (2021-2022), Natalie Youssef (2022-current), Rishabh Khanna (GWU Data Sciences, 2022-current), Erin Phillips (2022-current), Ziyad Maknojia (GWU Data Sciences, 2022-current)

MPH Culminating Experience students advised (all EOH at GWU, unless otherwise noted):

2021: Molly Robertson (Global Health), Julia Dempsey, Perrin Krisko, Anushka Raut; 2020: Emma Cook, Shanell Folger, Gopika Patwa, Joseph Hwang (Global Health); 2018: Vic Whitten (Global Health), Jaclyn Eidom, Isabella Kaser; 2017: Abdoulaye Bangoura, Joseph Kuziomko

Academic Advisor for MPH students (all EOH at GWU, designated by year the students entered MPH program at GWU): 2022: 8 students; 2021: 13 students; 2020: 11 students; 2019: 21 students; 2018: 15 students; 2017: 7 students

MPH Practicum students supervised (all EOH at GWU): Ben Skross (2022, at GW Climate and Health Institute), Nick Pendleton (2021, at GWU), Elizabeth Wang (2020, at GWU), Alex Lindahl (2017, at Environmental Health Analytics, LLC), Omobolanle Oshinusi (2017, at Environmental Health Analytics, LLC), El'gin Avila (2016, at Environmental Health Analytics, LLC), Ans Irfan (at Environmental Health Analytics, LLC), Nathan McCray (2016, at U.S. Chemical Safety Board), Anjelica Oien (2016, at U.S. Chemical Safety Board)

### **Undergraduate**

Margaret Nelson (BS Public Health and BS Economics; 2020-2021), Emily Richardt (2022-current)