

Scott N. Spak

School of Planning & Public Affairs
University of Iowa
345 Jessup Hall
Iowa City, Iowa
52242-1192

scott-spak@uiowa.edu
(319) 335-0037

ACADEMIC APPOINTMENTS

University of Iowa

2019 - present Associate Professor, School of Planning & Public Affairs
Associate Professor, Department of Civil & Environmental
Engineering (affiliate since 2011)
Senior Research Fellow, Public Policy Center (affiliate since 2011)

2011 - 2019 Assistant Professor, School of Urban & Regional Planning

2010 - 2011 Assistant Research Scientist, Center for Global & Regional
Environmental Research
Assistant Research Engineer, IIHR Hydroscience & Engineering

2008 - 2010 Postdoctoral Research Scholar, Chemical & Biochemical Engineering

EDUCATION

PhD 2009 Atmospheric & Oceanic Sciences, University of Wisconsin-Madison
Graduate certificates in Energy Analysis & Policy, Air Resources
Management, Delta Certificate in Research, Teaching & Learning

AB 2000 Engineering Sciences, Dartmouth College

AWARDS & HONORS

2023 University of Iowa Career Development Award

2022 Iowa Initiative for Sustainable Communities Faculty Excellence and Service
Award

2020 American Collegiate Schools of Planning and Lincoln Institute of Land
Policy Curriculum Innovation Award

- 2015 NASA Group Achievement Award for the SEACR4S 2013 mission
- 2013 Amicus Curiae to the U.S. Supreme Court, No. 12-1182, -1183
- 2009 Instructor, NASA NSERC Student Airborne Research Program
- 2004 George W. Bunn Wisconsin Distinguished Fellow, 2004-2005

CITATION IMPACT March 2022

Google Scholar: 2562 citations, h-index 30

Web of Science: 1654 citations, h-index 27

Scopus: 1753 citations, h-index 27

PEER-REVIEWED PUBLICATIONS

*student advisees/mentees #postdoctoral scholars and supervised research staff

- 44. P. Chakraborty, H. Gadhavi, B. Prithiviraj, M. Mukhopadhyay, S.N. Khuman, M. Nakamura, S.N. Spak (2021). Passive air sampling of PCDD/Fs, PCBs, PAHs, DEHA, and PAEs from informal electronic waste recycling and allied sectors in Indian megacities. *Environmental Science & Technology* 55, 14, 9469-9478, doi:10.1021/acs.est.1c01460.
- 43. L. Yoder, A.S. Ward, S.N. Spak, K.E. Dalrymple (2020). Local government perspectives on collaborative watershed governance: a comparative approach of Iowa's Watershed Management Authorities, *Policy Studies Journal*, 49(4), 1087-1109, doi:10.1111/psj.12389.
- 42. L. Yoder, A.S. Ward, K.E. Dalrymple, S.N. Spak, R. Lave (2019). An analysis of conservation practice adoption studies in agricultural human-natural systems, *Journal of Environmental Management* 236, 490-498, doi: 10.1016/j.jenvman.2019.02.009.
- 41. C. Dong*, H. Matsui, S.N. Spak, A. Kalafut-Pettibone, C.O. Stanier (2019). Impacts of new particle formation on short-term Midwestern meteorology and air quality as determined by the NPF-explicit WRF-Chem. *Aerosol and Air Quality Research* 19, 204-220, doi:10.4209/aaqr.2018.05.0163.
- 40. M. Bilal*, Z. Qiu, J.R. Campbell, S.N. Spak, X. Shen, M. Nazeer (2018). A new MODIS C6 Dark Target and Deep Blue merged aerosol product at 3 km spatial resolution. *Remote Sensing* 10, 463, doi:10.3390/rs10030463.

39. N. Herkert*, S.N. Spak, A. Smith*, J.K. Schuster, T. Harner, A. Martinez, K.C. Hornbuckle (2018). Calibration and evaluation of PUF-PAS sampling rates across the Global Atmospheric Passive Sampling (GAPS) Network. *Environmental Science: Processes & Impacts* 20, 210–219, doi: 0.1039/c7em00360a.
38. M. Bilal*, J.E. Nichol, S.N. Spak (2017). A new approach for estimation of hourly fine particulate concentrations using satellite aerosol optical depth and binning of meteorological variables. *Aerosol and Air Quality Research* 17, 356–367, doi:10.4209/aaqr.2016.03.0097.
37. J.S. Bril*, K.L. Langenfeld, C.L. Just, S.N. Spak, T.J. Newton (2017). Simulated mussel mortality thresholds as a function of mussel biomass and nutrient loading. *PeerJ*, 5:e2838; doi:10.7717/peerj.2838.
36. A. Martinez, S.N. Spak, N.T. Petrich*, D. Hu, G.R. Carmichael, K.C. Hornbuckle (2015). Atmospheric dispersion of PCB from a contaminated Lake Michigan harbor. *Atmospheric Environment* 122, 791–798, doi:10.1016/j.atmosenv.2015.10.040.
35. C.E. Shanahan*, S.N. Spak, A. Martinez, K.C. Hornbuckle (2015). Inventory of PCBs in Chicago and opportunities for reduction in airborne emissions and human exposure. *Environmental Science & Technology* 49, 13878–13888, doi:10.1021/acs.est.5b00906.
34. A.A. Peverly, Y. Ma, M. Venier, Z. Rodenburg*, S.N. Spak, K.C. Hornbuckle, R.A. Hites (2015). Variations of flame retardants, polycyclic aromatic hydrocarbons, and pesticide concentrations in Chicago's atmosphere measured using passive sampling. *Environmental Science & Technology* 49, 5371–5379, doi:10.1021/acs.est.5b00216.
33. M. Huang*, K.W. Bowman, G.R. Carmichael, M. Lee, T. Chai, S.N. Spak, D.K. Henze, A.S. Darmenov, A.M. da Silva (2015). Improved western US background ozone estimates via constraining nonlocal and local source contributions using Aura TES and OMI observations. *Journal of Geophysical Research-Atmospheres* 120, 3572–3592, doi:10.1002/2014JD022993.
32. P.E. Saide*, S.N. Spak, R.B. Pierce, J.A. Otkin, T. Schaack, A. Heidinger, A. M. da Silva, M. Kacenelenbogen, J. Redemann, G.R. Carmichael (2015). Central American biomass burning smoke can increase tornado severity in the US. *Geophysical Research Letters* 42, doi:10.1002/2014GL062826.

31. S. Kulkarni*, N. Sobhani, J.P. Miller-Schulze, M.M. Shafer, J.J. Schauer, P.A. Solomon, P.E. Saide*, S.N. Spak, Y.F. Cheng, H.A.C. Denier van der Gon, Z. Lu, D.G. Streets, G. Janssens-Maenhout, C. Wiedenmyer, J. Lantz, M.S. Artamonova, B. Chen, S.A. Imashev, L.G. Sverdlík, J.T. Deminter, B. Adhikary, A. D'Allura, C. Wei, G.R. Carmichael (2015). Source sector and region contributions to black carbon and PM_{2.5} in Central Asia. *Atmospheric Chemistry & Physics* 15, 1683-1705, doi:10.5194/acp-15-1683-2015.
30. J. Downard, A. Singh, R. Bullard, T. Jayarathne, C. Rathnayake, D.L. Simmons, B.R. Wels, S.N. Spak, T. Peters, D. Beardsley, C. Stanier, E.A. Stone (2015). Uncontrolled combustion of shredded tires in a landfill – Part 1: Characterization of gaseous and particulate emissions. *Atmospheric Environment* 104, 195-204, doi:10.1016/j.atmosenv.2014.12.059.
29. A. Singh, S.N. Spak, E.A. Stone, J. Downard, R. Bullard, M. Pooley*, P.A. Kastle, M.W. Mainprize, M.D. Wichman, T. Peters, D. Beardsley, C. Stanier (2015). Uncontrolled combustion of shredded tires in a landfill - Part 2: Population exposure, public health response, and an air quality index for urban fires. *Atmospheric Environment* 104, 273-283, doi:10.1016/j.atmosenv.2015.01.002.
28. M.C. Wyant, C.S. Bretherton, R. Wood, G.R. Carmichael, A. Clarke, J. Fast, R. George, W.I. Gustafson, C. Hannay, A. Lauer, Y. Lin, J.-J. Morcrette, J. Mulcahy, P.E. Saide*, S.N. Spak, Q. Yang (2015). Global and regional modeling of clouds and aerosols in the marine boundary layer during VOCALS: The VOCA Intercomparison. *Atmospheric Chemistry & Physics* 15, 53-172, doi:10.5194/acp-15-153-2015.
27. M.A. Mena-Carrasco, P.E. Saide*, R. Delgado, P. Hernandez, S.N. Spak, L.T. Molina, G.R. Carmichael, X. Jiang (2014). Regional climate feedbacks in Central Chile and their effect on air quality episodes and meteorology. *Urban Climate* 10, 771-781, doi:10.1016/j.uclim.2014.06.006.
26. Y.J. Kim[#], S.N. Spak, G.R. Carmichael, N. Riemer, C.O. Stanier (2014). Modeled aerosol nitrate formation pathways during wintertime episodes in the Great Lakes region of North America. *Journal of Geophysical Research-Atmospheres* 119, 12,420–12,445, doi:10.1002/2014JD022320.
25. Y. Hu, M.T. Odman, P. Lee, D. Tong, S.N. Spak, A.G. Russell (2014). A clear view of tomorrow's haze: improvements in air quality forecasting. *EM — Air & Waste Management Association's Magazine for Environmental Managers*, February 2014, 11-15.

24. N.T. Petrich*, S.N. Spak, G.R. Carmichael, D. Hu, A. Martinez, K.C. Hornbuckle (2013). Simulating and explaining passive air sampling rates for semi-volatile compounds on polyurethane foam passive samplers. *Environmental Science & Technology* 47 (15), 8591–8598, doi:10.1021/es401532q.
23. G.R. Carmichael, S. Kulkarni*, Y.F. Cheng, V. Ramanathan, S.N. Spak (2013). Short-lived climate forcing agents and their roles in climate change. *Procedia-Social and Behavioral Sciences* 77, 227–236, doi:10.1016/j.sbspro.2013.03.082.
22. C.H. Twohy, J.R. Anderson, D.W. Toohey, M. Andrejczuk, A. Adams, M. Lytle, R.C. George, R. Wood, P.E. Saide*, S.N. Spak, P. Zuidema, D. Leon (2013). Impacts of aerosol particles on the microphysical and radiative properties of stratocumulus clouds over the southeast Pacific ocean. *Atmospheric Chemistry & Physics* 13, 2541–2562, doi:10.5194/acp-13-2541-2013.
21. M. Huang*, G.R. Carmichael, T. Chai, R.B. Pierce, S.J. Oltmans, D.A. Jaffe, K.W. Bowman, A. Kaduwela, C. Cai, S.N. Spak, A.J. Weinheimer, L.G. Huey, G.S. Diskin (2013). Impacts of transported background pollutants on summertime western US air quality: model evaluation, sensitivity analysis and data assimilation. *Atmospheric Chemistry & Physics* 13, 359–391, doi:10.5194/acp-13-359-2013.
20. C. Stanier, A. Singh, W. Adamski, J. Baek, M. Caughey, G. Carmichael, E. Edgerton, D. Kenski, M. Koerber, J. Oleson, T. Rohlff, S.R. Lee, N. Riemer, S. Shaw, S. Sousan, S.N. Spak (2012). Overview of the LADCO winter nitrate study: Hourly ammonia, nitric acid and PM_{2.5} composition at an urban and rural site pair during PM_{2.5} episodes in the U.S. Great Lakes region. *Atmospheric Chemistry & Physics* 12, 11037–11056, doi:10.5194/acp-12-11037-2012.
19. C.C. Tsao, J.E. Campbell, M.A. Mena-Carrasco, S.N. Spak, G.R. Carmichael, Y. Chen (2012). Biofuels that cause land-use change may have much larger non-GHG air quality emissions than fossil fuels. *Environmental Science & Technology* 46, 10835–10841, doi:10.1021/es301851x.
18. T. Holloway, C. Voigt, J. Morton, S.N. Spak, A.P. Rutter, J.J. Schauer (2012). An assessment of atmospheric mercury in the Community Multiscale Air Quality (CMAQ) model at an urban site and a rural site in the Great Lakes Region of North America. *Atmospheric Chemistry & Physics* 12, 7117–7133, doi:10.5194/acp-12-7117-2012.

17. P.E. Saide*, G.R. Carmichael, S.N. Spak, P. Minnis, J.K. Ayers (2012). Improving aerosol distributions below clouds by assimilating satellite-retrieved cloud droplet number. *Proceedings of the National Academy of Sciences* 30, 11939-11943, doi:10.1073/pnas.12058771109.
16. M.A. Mena-Carrasco, E. Oliva, P.E. Saide*, S.N. Spak, C. de la Maza, M. Osses, S. Tolvett, J.E. Campbell, C.C. Tsao, L.T. Molina (2012). Estimating the health benefits from natural gas use in transport and heating in Santiago, Chile. *Science of the Total Environment* 429, 257-265, doi:10.1016/j.scitotenv.2012.04.037.
15. P.E. Saide*, S.N. Spak, G.R. Carmichael, M.A. Mena-Carrasco, Q. Yang, S. Howell, D.C. Leon, J.R. Snider, A.R. Bandy, J.L. Collett, K.B. Benedict, S.P. de Szoeki, L.N. Hawkins, G. Allen, I. Crawford, J. Crosier, S.R. Springston (2012). Evaluating WRF-Chem aerosol indirect effects in Southeast Pacific marine stratocumulus during VOCALS-REx. *Atmospheric Chemistry & Physics* 12, 3045-3064, doi:10.5194/acp-12-3045-2012.
14. M.L. Grabow*, S.N. Spak, T. Holloway, B. Stone, A.C. Mednick, J.A. Patz (2012). Air quality and exercise-related health benefits from reduced car travel in the Midwestern United States. *Environmental Health Perspectives* 120, 68-76, doi:10.1289/ehp.1103440.
13. C.C. Tsao, J.E. Campbell, M.A. Mena-Carrasco, S.N. Spak, G.R. Carmichael, Y. Chen (2012). Increased estimates of air-pollution emissions from sugarcane ethanol in Brazil. *Nature Climate Change* 2, 53-57, doi:10.1038/NCLIMATE1325.
12. D.S. Tkacik*, Y. Luna-Cruz*, N.E. Clinton, S.N. Spak, J. Ryan (2012). Atmospheric correction for MASTER image data using localized modelled and observed meteorology and trace gases. *Remote Sensing Letters* 3(3), 201-209, doi:10.1080/01431161.2010.551550.
11. Q. Yang, W.I. Gustafson, J.D. Fast, H. Wang, R.C. Easter, H. Morrison, Y.-N. Lee, S.N. Spak, M.A. Mena (2011). Assessing regional scale predictions of aerosols, marine stratocumulus, and their interactions during VOCALS-REx using WRF-Chem. *Atmospheric Chemistry & Physics* 11, 11951-11975, doi:10.5194/0.5194/acp-11-11951-2011.
10. P.E. Saide*, G.R. Carmichael, S.N. Spak, L. Gallardo, A.E. Osses, M.A. Mena-Carrasco, M. Pagowski (2011). Forecasting urban PM10 and PM2.5 pollution episodes in very stable nocturnal conditions and complex terrain using WRF-Chem CO tracer model. *Atmospheric Environment* 45, 2769-2780, doi:10.1016/j.atmosenv.2011.02.001.

9. G.R. Rubasinghege, S.N. Spak, G.R. Carmichael, C. Stanier, V.H. Grassian (2011). Abiotic mechanism for the formation of atmospheric nitrous oxide from ammonium nitrate. *Environmental Science & Technology* 45 (7), 2691-2697, doi:10.1021/es103295v.
8. M. Huang*, G.R. Carmichael, S.N. Spak, B. Adhikary, S. Kulkarni*, Y. Cheng, C. Wei, Y. Tang, A. D'Allura, P. Wennberg, G. Huey, J. Dibb, J.L. Jimenez, A.J. Weinheimer, A. Kaduwela, C. Cai, M. Wong, R.B. Pierce, J.A. Al-Saadi, D.G. Streets, Q. Zhang (2011). Multi-scale modeling study of the source contributions to near-surface ozone and sulfur oxides levels over California during the ARCTAS-CARB period. *Atmospheric Chemistry & Physics* 11, 3173-3194, doi:10.5194/acp-11-3173-2011.
7. M. Huang*, G.R. Carmichael, B. Adhikary, S.N. Spak, S. Kulkarni, Y.F. Cheng, C. Wei, Y. Tang, D.D. Parrish, S.J. Oltmans, A. D'Allura, A. Kaduwela, C. Cai, A.J. Weinheimer, M. Wong, R.B. Pierce, J.A. Al-Saadi, D.G. Streets, Q. Zhang (2010). Impacts of transported background ozone on California air quality during the ARCTAS-CARB period—A multi-scale modeling study. *Atmospheric Chemistry & Physics* 10, 6947-6968, doi:10.5194/acp-10-6947-2010.
6. S.N. Spak and T. Holloway (2009). Seasonality of speciated aerosol transport over the Great Lakes region. *Journal of Geophysical Research – Atmospheres* 114, D08302, doi:10.1029/2008JD010598.
5. B. Stone, A.C. Mednick, T. Holloway, S.N. Spak (2009). Mobile source CO₂ mitigation through smart growth development and vehicle fleet hybridization. *Environmental Science & Technology* 43 (6), 1704–1710, doi:10.1021/es8021655.
4. T. Holloway, S.N. Spak, D.J. Barker, M.P. Bretl, C. Moberg, K. Hayhoe, J. Van Dorn, D. Wuebbles (2008). Change in ozone air pollution over Chicago associated with global climate change. *Journal of Geophysical Research – Atmospheres* 133, D22306, doi:10.1029/2007JD009775.
3. T. Holloway, T. Sakurai, Z. Han, S. Ehlers, S.N. Spak, L.W. Horowitz, G.R. Carmichael, D. Streets, Y. Hozumi, H. Ueda, S.U. Park, C. Fung, M. Kajino, N. Thongboonchoo, M. Engardt, C. Bennet, H. Hayami, K. Sartelet, Z. Wang, K. Matsuda, M. Amann (2008). Impact of global emissions on regional air quality in Asia. *Atmospheric Environment* 42, 3543–3561, doi:10.1016/j.atmosenv.2007.10.022.
2. B. Stone, A.C. Mednick, T. Holloway, S.N. Spak (2007). Is compact growth good for air quality? *Journal of the American Planning Association* 73:4, 404-418, doi:10.1080/01944360708978521.

1. S.N. Spak, T. Holloway, B. Lynn, R. Goldberg (2007). A comparison of statistical and dynamical downscaling for surface temperature in North America. *Journal of Geophysical Research– Atmospheres* 112, D08101, doi:10.1029/2005JD006712.

Reports

- A. Shu-Yin, M.L. Diamond, L.E. Melymuk, S.N. Spak (2018). PCB Inventory in the Great Lakes Region. Environment and Climate Change Canada, 25 pp.
- S.N. Spak, J. Baek, J. Carlson, G.R. Carmichael, Y.J. Kim#, N. Riemer, C.O. Stanier (2012). Episodic Air Pollution in Wisconsin during the 2009 LADCO Winter Nitrate Study, Phase II. Lake Michigan Air Directors Consortium, 292 pp.
- J. Baek, G.R. Carmichael, S.-R. Lee, J.J. Oleson, N. Riemer, T. Rohlf, S. Sousan, S.N. Spak, C.O. Stanier (2010). Episodic Air Pollution in Wisconsin during the 2009 LADCO Winter Nitrate Study. Lake Michigan Air Directors Consortium, 144 pp.
- C.O. Stanier (ed.) (2009). Understanding Episodes of High Airborne Particulate Matter in Iowa. Bi-State Regional Commission, 127 pp.
- K. Hayhoe and D. Wuebbles (eds.) (2008). Climate change and Chicago: Projections and potential impacts. City of Chicago, Chicago Climate Action Plan, 208 pp.

Plans & Reports Supervised: Iowa Initiatives for Sustainable Communities

Sustainable Communities Lab and Field Problems in Planning Capstone

- | | |
|-------------|--|
| 2022 - 2023 | Clinton Liberty Square Plan |
| 2021 - 2022 | Maquoketa River Watershed Management Authority: Implementation Plan (implemented, 2022) |
| 2020 - 2021 | Maquoketa River Watershed Management Plan (implemented, 2021) |
| 2019 - 2020 | Tama Comprehensive Plan
(adopted, 2020; Iowa APA Exemplary Student Project Award, 2021) |
| 2018 - 2019 | Linn County Wind Energy Land Use Compatibility Assessment
(decision support operational, 2019) |
| 2017 - 2018 | Cedar County Comprehensive Plan (adopted, 2018)
Cedar County Great Places Vision Plan (designated, 2018) |
| 2016 - 2017 | Mason City Sustainability Plan |
| 2015 - 2016 | Sioux City Downtown Greenspace Plan
(initial implementation funded by a \$500K gift, 2016;
inaugural Iowa APA Exemplary Student Project Award, 2018) |

- 2014 - 2015 Sioux City Active Transportation Plan (adopted, 2015)
Frac-Sand Mining in Winneshiek County: A Comprehensive Impact Study (resolution adopted, 2015)
- 2011 - 2012 Renewable Energy for a Smarter Sustainable Dubuque
(decision support operational, 2012)

Environmental Policy & Management

- 2021 Iowa City Solar 2035 (initial implementation, 2022)
- 2020 Johnson Clean Energy District electrification and greenhouse gas mitigation decision support (operational, 2020)
- 2019 Implementation Plan for the City of Iowa City Climate Action Plan (operational, 2019)
- 2018 Adaptation Plan for Terry Trueblood Recreation Area and Iowa River, City of Iowa City and Sustainability Theme Semester (initial implementation funded by a \$200K Iowa DNR REAP grant, 2019)
- 2017 English River Watershed Management Authority, Applied watershed management in an urban and rural context (operational, 2017)

Analytic Methods I

- 2021 Iowa League of Cities Compensation and Benefits Survey

Textbooks

T. Neal, S. Herder, A. Malek, Z. Miller, S.N. Spak, C. Stanier (2018, with ongoing updates). [8th Grade Iowa Science Phenomenon Bundles.](#)

Other Non-Refereed Publications

S.N. Spak[^], M.A. Mena-Carrasco, G.R. Carmichael (2010). Atmospheric transport of anthropogenic oxidized sulfur over the Southeast Pacific during VOCALS REx. *CLIVAR Exchanges*, 53, 20-21.

RESEARCH GRANTS

External Awards

Current

2020 NIEHS, Iowa Superfund Research Program: Airborne PCBs: Sources, Exposures, Toxicities, Remediation. Administrative Core, \$1,143K, 2020-2025, Research Translation Coordinator, with Keri Hornbuckle (Center Director) and Hans-Joachim Lehmler (Deputy Director).

Data Management and Analysis Core, \$1,115K, 2020-2025, Core Leader, with Kai Wang (Core Co-Leader), Michael Jones (Co-I), Brian Westra (Co-I), and Qianjin Zhang (Co-I).

Completed

2019 NIEHS, Iowa Superfund Research Program: Airborne PCBs: Sources, Exposures, Toxicities, Remediation - Data Supplement, \$416K, 2019-2020, Co-I, with Keri Hornbuckle (PI) and 13 other Co-Is.

2017 NESI-SES, Energy systems planning for smart communities, \$36K, 2017-2018, PI.

2015 NIEHS, Iowa Superfund Research Program, Research Translation Core, \$416K, 2015-2020, PI, with Craig Just (Co-PI) and David Osterberg (emeritus).

NIEHS, Iowa Superfund Research Program, Project 4: Atmospheric sources of PCB congeners, \$1,100K, 2015-2020, Co-PI, with Keri Hornbuckle (PI), Andres Martinez (Co-PI), and Kai Wang (Co-I).

2014 NSF, Decision processes, climate change, and water resources in the Agricultural Midwest, \$599K, 2014-2019, Co-PI and Institutional PI, with Adam Ward (PI, Indiana University), Kajsia Dalrymple (Co-PI), and Sara Mitchell, Heather Sander, Ananya Sen Gupta, Aaron Strong, Eric Tate (Co-Is).

2014 NASA, Tiger Team: Web-enabled tools for air quality management decision support, \$240K, 2014-2016, Co-PI, with James Szykman (US EPA, PI), Gregory Carmichael (Co-I), Daven Henze (Co-I, University of Colorado at Boulder), Richard McNider, (Co-I, University of Alabama-Huntsville), and Brad Pierce (NOAA NESDIS, Co-I).

2011 US EPA, Constraining urban-to-global scale estimates of black carbon distributions, sources, regional climate impacts, and co-benefit metrics with advanced coupled dynamic - chemical transport adjoint models, \$895K, 2011-2015, Co-I, with Gregory Carmichael (PI), Daven Henze (Co-PI, University of Colorado at Boulder) and George Grell (NOAA ESRL, Co-PI).

NASA, Air Quality Applied Science Team: Improving air quality analysis through closer integration of observations and models, \$575K, 2011-2016, Co-I, with Gregory Carmichael (PI) and David Streets (Co-PI).

2009 LADCO, Analysis and modeling of the LADCO Winter Nitrate Study, \$135K, 2009-2011, Co-I, with Charles Stanier (PI), Nicole Reimer (Co-PI), and Gregory Carmichael (Co-PI).

UI Awards

Completed

2020 Interdisciplinary Scalable Solutions for a Sustainable Future, Sustainable air quality: tracking aeroallergens across urban and rural environments. \$40K, 2020-2021. Co-PI, with Elizabeth Stone (PI), Thomas Peters (Co-PI), and Heather Sander (Co-PI).

2016 CGRER-College of Education Iowa K-12 Climate Science Education Initiative, Co-PI, \$50K, 2016-2018, with Ted Neal (PI) and Charles Stanier (Co-PI).

2014 University of Iowa Internal Funding Initiatives, Quantifying climate change and the impact of volcanic activity on high-altitude late glacial lake sediments in Chile, \$60K, 2014-2015, Co-PI, with Ingrid Peate (PI) and Timothy Matthes (Co-PI).

2011 University of Iowa Facilities Management, Air quality impact of stationary power generation at the University of Iowa, \$160K, 2011-2015, PI, with Elizabeth Stone (Co-PI) and Charles Stanier (Co-PI).

PROFESSIONAL LEADERSHIP & SERVICE

External Committees and Panels (Invited Participation)

2023	BenMAP and Benefits Methods Panel, US Environmental Protection Agency Science Advisory Board Reviewer, National Science Foundation
2022	Panelist and reviewer, National Science Foundation
2018	Reviewer, National Science Foundation
2017	Panelist and reviewer, National Science Foundation Reviewer, U.S. National Academy of Sciences
2016	Panelist and reviewer, National Science Foundation

- Reviewer, Tahoe Regional Planning Agency 2015 Threshold Evaluation Report
- 2015 Panelist and reviewer, National Science Foundation
- 2012 Reviewer, Fundação para a Ciência e a Tecnologia

University of Iowa

- 2022 - present Campus Planning Committee
- 2011 - present Member Representative, University Corporation for Atmospheric Research
- 2013 - 2020 High Performance Computing Policy Committee

RECENT MEDIA APPEARANCES

- 2021 Guest, River to River, Iowa Public Radio, 4 November 2021
- 2017 Rebecca Altman, [How the Benzene Tree Polluted the World](#), *The Atlantic*, 4 October 2017
- 2016 Guest, River to River, Iowa Public Radio, 1 November 2016
- 2015 Guest, River to River, Iowa Public Radio, 19 February 2015

RECENT MEDIA COVERAGE OF RESEARCH & TEACHING

- 2019 Cedar Rapids Gazette, Daily Iowan, Iowa City Press-Citizen, KGAN, NASA Space for US
- 2018 Cedar Rapids Gazette, KCRG, Tipton Conservative
- 2017 Cedar Rapids Gazette, Des Moines Register, KCRG, NASA Sensing Our Planet, Scientific American
- 2015 CBS News, Environmental Health News, NBC Nightly News, National Geographic, Nature, Popular Science, Science, Scientific American, USA Today