

DR. NATASHA L. MILES

ASSOCIATE RESEARCH PROFESSOR

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HIGHLIGHTS

Greenhouse gas atmospheric scientist with 19 years of experience working to understand the temporal and spatial distribution of greenhouse gases (primarily carbon dioxide and methane) in the atmosphere, and relating these distributions to sources and sinks of these gases. The Mid-Continent Intensive (MCI) campaign in 2007 – 2009 focused on the U.S. corn belt and represented the first use of a regional network of tower carbon dioxide measurements to determine emissions via atmospheric methods. The Indianapolis Flux (INFLUX) project, beginning in 2010 and currently in operation, was the National Institute of Standards and Technology's first urban testbed to utilize atmospheric methods to determine greenhouse gas emissions. Following projects in the Marcellus (2015 – 2017) and Permian (2020 – current) oil and natural gas basins applied related techniques to determine methane emissions. Throughout her career, Natasha and her colleagues have been leaders in the development and implementation of new techniques to determine greenhouse gas emissions.

EDUCATION

- **Ph.D. in Meteorology**, August 1998 – December 2002, The Pennsylvania State University, University Park, PA, "Observations of transient linear organization and nonlinear scale interactions in lake-effect clouds"
- **M.S. in Meteorology**, August 1996 – August 1998, The Pennsylvania State University, University Park, PA, "Cloud drop size distributions in low-level stratiform clouds"
- **M.S. in Physics**, August 1994 – May 1996, Syracuse University, Syracuse, NY
- **B.A. in Physics with Mathematics minor**, August 1990 – May 1994, DePauw University, Greencastle, IN, Magna Cum Laude

PROFESSIONAL APPOINTMENTS

- Associate Research Professor, The Pennsylvania State University, University Park, PA, July 2017 – current. Greenhouse gas mole fractions: measurements and analysis.
- Co-owner, Carbon Now Cast, LLC, State College, PA, October 2012 – December 2020. Company providing carbon emissions monitoring and related consulting services.
- Assistant Research Professor, The Pennsylvania State University, University Park, PA, June 2006 – June 2017. Greenhouse gas mole fractions: measurements and analysis.

- Postdoctoral Scholar, The Pennsylvania State University, University Park, PA, January 2003 – May 2006. Greenhouse gas mole fractions: measurements and analysis.
- Research Associate, The Pennsylvania State University, University Park, PA, July 2001 – December 2002. Large-eddy simulation of the atmospheric boundary layer, focusing on near-surface pressure, with Dr. John C. Wyngaard.
- Instructor for METEO 002/003L (Weather and Society), August 2001 – December 2001
- Graduate Teaching Assistant, The Pennsylvania State University, University Park, PA, August 2000 – December 2000, METEO 445 (Laboratory in Atmospheric Physics I)
- Research Fellow, GKSS, Geesthacht, Germany, September 1998 – December 1998
- Graduate Research Assistant, The Pennsylvania State University, University Park, PA, August 1996 – June 2001 Transient linear cloud organization and nonlinear scale interactions, Advisor: Dr. Johannes Verlinde.
- Teaching/Research Assistant, Syracuse University, Syracuse, NY, June 1995 – May 1996

RESEARCH GRANTS

- **NOAA**, “Assessment of NOAA Earth System Research Laboratory’s Global Monitoring Division tall tower network measurements of atmospheric carbon dioxide and related gases”
 - \$94,231, 8/10/2021 to 6/30/2023, role: **Principal Investigator**, in progress.
- **NOAA**, “COVID impact on urban GHG emissions: A multi-city investigation”
 - \$106,656, 9/1/2021 to 8/31/2023, role: **co-PI**, in progress.
- **EDF**, “Atmospheric inversions of CH₄ in the Permian Basin”
 - \$994,882, 7/1/2019 to 8/31/2023, role: **Principal Investigator**, in progress.
- **NOAA AC4**, “Diagnosis of North America CO₂ and CH₄ fluxes with the expanded in situ measurement network”
 - \$479,340, 9/1/2019 to 8/31/2023, role: **co-I**, in progress.
- **NIST**, “Estimation of urban greenhouse gas emissions using regional atmospheric inversions”
 - \$2,060,239, 10/1/2019 to 9/30/2023, role: **co-PI**, in progress.
 - \$2,687,523, 10/01/2015-09/30/2019, role: **co-PI**, completed.
 - \$3,295,452, 10/01/2010-09/30/2016, role: **co-PI**, completed.
- **PSU Institutes for Energy and the Environment seed grant**, “Community engagement and interdisciplinary collaboration to direct air quality research at industrial sites near Pittsburgh”
 - \$30,000, 7/1/2021 to 6/30/2022, role: **Principal Investigator**, completed.
- **PSU Institute for Computational and Data Sciences seed grant**, “Mapping of North American greenhouse gas measurement locations using Arc-GIS”
 - 80 personnel hours, 9/1/2021 to 2/28/2022, role: **Principal Investigator**, completed.
- **NASA**, “Atmospheric Carbon Transport – America (ACT-America)”
 - \$3,114,886, 03/11/2015-03/10/2020, role: **other**, completed.
- **NOAA**, “Greenhouse tower site”
 - \$15,000, 11/01/2017-10/31/2018, role: **Principal Investigator**, completed.
- **NASA**, “Quantification of the regional impact of terrestrial processes on the carbon cycle using atmospheric inversions”
 - \$1,272,949, 06/01/2014-05/31/2018, role: **co-PI**, completed.

- **DoE**, “Continuous, regional methane emissions estimates in northern Pennsylvania gas fields using atmospheric inversion”
 - \$1,782,725, 10/1/2013-5/31/2017, role: **co-PI**, completed.
- **NOAA**, “North American carbon cycle diagnoses using flux and mixing ratio observations, and high-resolution transport modeling”
 - \$555,219, 9/1/2011-8/31/2015, role: **co-PI**, completed.
- **NASA**, “Regional atmospheric inversions to determine land-atmosphere carbon fluxes in the southeastern forests of the United States”
 - \$742,970, 3/1/2011-2/28/2015, role: **co-PI**, completed.
- **Purdue University**, “ARRA: Decadal Development, Improvement, and Assessment of the Accuracy of Aircraft-Based Mass Balance Measurements of the Integrated Urban Emission Fluxes of Greenhouse Gases”
 - \$310,926, 1/1/2010-12/31/2012, role: **co-PI**, completed.
- **DoE**, “Syntheses of carbon dioxide flux and mixing ratio measurements in support of the North American Carbon Program Midcontinental Regional Intensive”
 - \$761,999, 9/1/2006-8/31/2010, role: **co-PI**, completed.

FIELD PROJECTS

- PermianMAP (EDF Permian Methane Analysis Project) network of CH₄ tower measurements in the Permian Basin, Texas/New Mexico, March 2020 – current, data analysis leader.
- INFLUX (Indianapolis Flux Project) urban-scale network of CO₂, CO, and CH₄ sensors, Indianapolis, Indiana, October 2010 – current, data analysis leader.
- Network of CO₂ and CH₄ sensors in support of the Atmospheric Carbon and Transport – America (ACT – America) project, various sites in the U.S., July 2016 – December 2019, data analysis leader.
- Regional network of methane and isotopic ratio of methane measurements in the northern Pennsylvania gas fields, May 2015 – March 2017, data analysis leader.
- Gulf Coast Intensive (GCI): Network of CO₂ sensors in the Southeast U.S., March 2015 – May 2017, data analysis leader.
- Urban emissions of CO₂ from Davos, Switzerland, December 2011 – February 2012, data analysis leader.
- Network well-calibrated carbon dioxide concentration sensors (non-dispersive infrared analyzers) deployed at Ameriflux towers, 2006 – 2015, data analysis leader.
- Ring 2 network of well-calibrated carbon dioxide concentration cavity ring-down spectroscopy sensors, as part of the North American Carbon Program’s MidContinental Intensive, Iowa region, May 2007 – October 2009, data analysis leader.
- Ring 1 network of well-calibrated carbon dioxide concentration sensors (non-dispersive infrared analyzers), Wisconsin, summers 2003 – 2004.
- Cloud and Radiation Experiment (CLARE), Chilbolton, UK, October 1998.
- Lake-Induced Convection Experiment (Lake-ICE), Great Lakes Region, Michigan, January 1998.
- Penn State Continental Stratus Experiment, Rock Springs, Pennsylvania, October 1996.

ACADEMIC AWARDS / HONORS / PROFESSIONAL AFFILIATIONS

- Student Poster Presentation Award (15th Symposium on Boundary Layers and Turbulence, July 2002)
- The Pennsylvania State University Graduate School Dissertation Fellow (2001)
- Syracuse University Graduate Fellowship (1994–1995)
- Chi Epsilon Pi National Meteorology Honor Society
- Phi Beta Kappa Honor Society
- Sigma Pi Sigma Physics Honor Society
- American Geophysical Union
- European Geophysical Union

PROFESSIONAL SERVICE ACTIVITIES (INTERNAL)

- Penn State Meteorology and Atmospheric Science Department Committee on Belonging (co-chair) (May 2022 – current)
- Penn State College of Earth and Mineral Science Sustainability Committee (research sub-committee chair) (October 2019 – May 2022)
- Penn State Meteorology and Atmospheric Science Department Non-Tenure Line Faculty Advisory Committee
 - Member (November 2019 – December 2020)
 - Chair (January 2019 – November 2019)
 - Member (September 2017 – December 2018)
 - Chair (October 2010 – August 2012)
- Penn State Meteorology and Atmospheric Science Department Non-Tenure Line Faculty Promotion Committee
 - Member (November 2016 – December 2020)
- Penn State College of Earth and Mineral Science Non-Tenure Line Faculty Promotion Committee
 - Member (December 2020 – current)

PROFESSIONAL SERVICE ACTIVITIES (EXTERNAL)

- Member of review panel for national funding agency (2019)
- Reviewer
 - Small Business Innovation Research (SBIR)
 - National Science Foundation (NSF)
 - *Boundary Layer Meteorology*
 - *Atmospheric Chemistry and Physics*
 - *Journal of Applied Meteorology and Climatology*
 - *Atmosphere*
 - *Environmental Research Letters*
 - *Applied Energy*
 - *Journal of Geophysical Research - Atmospheres*

- Member, NOAA Climate Program Office Working Group (May–June 2013)
- Organizer, INFLUX side meeting at the 4th North American Carbon Program All-Investigators Meeting, Albuquerque, NM, 2013

MENTORING ACTIVITIES

- M.S. Committee Member, Lily Campbell (Fall 2022)
- M.S. Committee Member, Samuel Wray (Summer 2022)
- Mentor, Research Experience for Undergraduates, Michael Brown (Summer 2022)
- Mentor, Multi-Campus Research Experience for Undergraduates, Jesse Rutt (Summer 2022)
- Ph.D. Committee Co-Chair, Helen Kenion (2022 - current)
- Ph.D. Committee Co-Chair, Samantha Murphy (2021 - current)
- Co-mentor, Undergraduate Researcher, Jacob Hair (November 2021 – May 2022)
- Mentor, Research Experience for Undergraduates, Matthew Berzonsky (Summer 2021)
- Mentor, Summer Undergraduate Researcher, Claire Jin (Summer 2021)
- Mentor, Summer Undergraduate Researcher, Victoria Sodeinde (Summer 2021)
- Co-mentor, Summer Undergraduate Researcher, David Marcial (Summer 2021)
- Mentor, Environmentors Program, Mary Ajibolade (undergraduate) and Victoria Sodeinde (high school student) (2020–2021 academic year)
- Mentor, Research Experience for Undergraduates, Christopher Larson (Summer 2020)
- Co-advisor, Post-Master’s Degree Researcher, Vanessa Monteiro (2019 – current)
- Mentor, Environmentors Program, Alisha Wellington (undergraduate) and Allison Mi (high school student) (2019–2020 academic year)
- Mentor, Environmentors Program, Matthew Arenas (undergraduate) and Ireolubowa Mayegun (high school student) (2018–2019 academic year)
- Co-advisor, Postdoctoral Scholar, Nikolay Balashov (2016–2018)
- Supervisor, Assistant Research Professor, Douglas Martins (2015–2018)
- M.S. Committee Member, Laura McGowan (2010–2013)
- Ph.D. Committee Member, Liza Diaz (2010–2017)
- Supervisor, Undergraduate Researcher, Joshua Aikins (2010)
- M.S. Committee Member, Liza Diaz (2008–2010)
- Supervisor, Undergraduate Researcher, Nicole Kerschner (2008)
- Supervisor, Undergraduate Researcher, Jamey Walizer (2007)

PUBLISHED DATASETS

1. Monteiro, V., **N.L. Miles**, S.J. Richardson, Z.R. Barkley, B.J. Haupt, and K.J. Davis, 2021: Permian Basin: In-situ tower greenhouse gas data. Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/98y5-t94>.
2. **Miles, N.L.**, S.J. Richardson, D.K. Martins, K.J. Davis, and B.J. Haupt, 2020: ACT-America: L1 Raw, uncalibrated in-situ CO₂, CO, and CH₄ mole fractions from towers, eastern USA. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1798>.

3. Deng, A.J., T. Lauvaux, **Miles, N.L.**, and K.J. Davis, 2020: Meteorological fields over Indianapolis, IN from the Weather Research and Forecasting model (WRF v3.5.1). Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/z04g-3h91>.
4. **Miles, N.L.**, S.J. Richardson, B.J. Haupt, K.J. Davis, B.B. Stephens, and A. Watt, 2019: Single-cell NDIR-based measurements of atmospheric CO₂ mole fractions measured at Ameriflux towers, 2006–2016. Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/fq80-7310>.
5. Richardson, S.J., **N.L. Miles**, T. Lauvaux, B.J. Haupt, and K.J. Davis, 2019: Cavity ring-down spectroscopic measurements of CO₂ mole fraction in State College, Pennsylvania, 2017–2018. Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/dc6p-cs52>.
6. **Miles, N. L.**, T. Lauvaux, S.J. Richardson, K.J. Davis, A. Deng, and D. Stauffer, 2019. Observational and modeled dataset for determination of urban emissions of CO₂ using an atmospheric inversion technique, Davos, Switzerland, 2011–2012. Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/mgrr-q950>.
7. Lauvaux, T., A. Deng, **N.L. Miles**, S.J. Richardson, and K.J. Davis, 2019. Tower footprints for the Indianapolis Flux Experiment network (2012–2015). Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/a95d-cm52>.
8. **Miles, N. L.**, S.J. Richardson, B.J. Haupt and K.J. Davis, 2019. Tower-based atmospheric CO₂ mole fractions (raw, uncalibrated) measured as part of the National Carbon Program’s Mid Continent Intensive, U.S. Upper Midwest, 2007–2009, Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.26208/eesp-p939>.
9. Mitchell, L., J.C. Lin, L.R. Hutyla, M. Sargent, S.C. Wofsy, **N.L. Miles**, S.J. Richardson, K.R. Verhulst, R.M. Duren, A. Rice, R.C. Cohen, A. Shusterman, S. Newman, and A. Guha, 2019. NACP: Urban Greenhouse Gases across the CO₂ Urban Synthesis and Analysis Network. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1743>.
10. NOAA Carbon Cycle Group ObsPack Team, 2019. Multi-laboratory compilation of atmospheric carbon dioxide data for the period 1957–2018. Earth System Research Laboratory, Global Monitoring Division. <https://doi.org/10.25925/20190812>.
11. **Miles, N.L.**, S.J. Richardson, D.K. Martins, K.J. Davis, T. Lauvaux, B.J. Haupt, and S.K. Miller, 2018. ACT-America: L2 In Situ CO₂, CO, and CH₄ Concentrations from Towers, Eastern USA. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1568>.
12. **Miles, N.L.**, S.J. Richardson, K.J. Davis, and B.J. Haupt, 2017. In-situ tower atmospheric measurements of carbon dioxide, methane and carbon monoxide mole fraction for the Indianapolis Flux (INFLUX) project, Indianapolis, IN, USA. Data set. Available on-line [<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.18113/D37G6P>.
13. **Miles, N.L.**, D.K. Martins, S.J. Richardson, T. Lauvaux, K.J. Davis, B.J. Haupt, and C. Rella, 2017. In-situ tower atmospheric methane mole fraction and isotopic ratio of methane data, Marcellus Shale Gas Region, Pennsylvania, USA. Data set. Available on-line

[<http://datacommons.psu.edu>] from The Pennsylvania State University Data Commons, University Park, Pennsylvania, USA. <http://dx.doi.org/10.18113/D3SG6N>.

14. **Miles, N.L.**, S.J. Richardson, K.J. Davis, A.E. Andrews, T.J. Griffis, V. Bandaru, and K.P. Hosman. 2013. NACP MCI: Tower Atmospheric CO₂ Concentrations, Upper Midwest Region, USA, 2007–2009. Data set. Available on-line [<http://daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA. <http://dx.doi.org/10.3334/ORNLDAAC/1202>.
15. Schuh, A.E., T. Lauvaux, S.M. Ogle, K.J. Davis, A.S. Denning, **N.L. Miles**, S.J. Richardson, and M. Uliasz. 2014. NACP MCI: CO₂ Flux from Inversion Modeling, Upper Midwest Region, USA, 2007. Data set. Available on-line [<http://daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA. <http://dx.doi.org/10.3334/ORNLDAAC/1204>.

REFEREED PUBLICATIONS

1. Mitchell, L.E., J.C. Lin, L. Hutyra, D.R. Bowling, R.C. Cohen, K. Davis, E. DiGangi, R.M. Duren, J.R. Ehleringer, C. Fain, M. Falk, A. Guha, A. Karion, R.F. Keeling, J. Kim, **N.L. Miles**, C.E. Miller, S. Newman, D.E. Pataki, S. Prinzivalli, X. Ren, A. Rice, S.J. Richardson, X. Ren, M. Sargent, B.B. Stephens, J. Turnbull, K.R. Verhulst, F. Vogel, R.F. Weiss, J. Whetstone, and S.C. Wofsy: A multi-city atmospheric greenhouse gas measurement data synthesis. *Sci. Data* 9(361), 2022.
2. Wu, K., K.J. Davis, **N.L. Miles**, S.J. Richardson, T. Lauvaux, D.P. Sarmiento, N.V. Balashov, K. Keller, J. Turnbull, and K.R. Gurney: Source decomposition of eddy-covariance CO₂ flux measurements for evaluating a high-resolution urban CO₂ emissions inventory. *Environ. Res. Lett.*, 17(7), 074035, 2022.
3. Monteiro, V., **N.L. Miles**, S.J. Richardson, J. Turnbull, A. Karion, J. Kim, L. Mitchell, J.C. Lin, M. Sargent, S. Wofsy, F. Vogel, K.J. Davis: The impact of the COVID-19 lockdown on greenhouse gases: A multi-city analysis of in situ atmospheric observations. *Environ. Res. Comm.*, 4, 041004, 2022.
4. Monteiro, V., **N.L. Miles**, S.J. Richardson, Z. Barkley, B.J. Haupt, D. Lyon, B. Hmiel, and K.J. Davis: Methane, carbon dioxide, hydrogen sulfide, and isotopic ratios of methane observations from the Permian Basin tower network. *Earth Syst. Sci. Data*, 14, 2401–2417, <https://doi.org/10.5194/essd-14-2401-2022>, 2022.
5. Dennis, L.E., S.J. Richardson, **N.L. Miles**, J. Woda, S.L. Brantley, and K.J. Davis: Methane fluxes in an area of shale gas development in northeastern Pennsylvania. *ACS Earth Space Chem.*, <https://doi.org/10.1021/acsearthspacechem.1c00312>, 2022.
6. Wei, Y., R. Shrestha, S. Pal, T. Gerken, J. McNelis, D. Singh, M. Thornton, A.G. Boyer, M. Shook, G. Chen, B.C. Baier, Z.R. Barkley, J. Barrick, J.R. Bennett, E.V. Browell, J.F. Campbell, L.J. Campbell, Y. Choi, J. Collins, J. Dobler, M. Eckl, S. Feng, A. Fiehn, A. Fried, J.P. DiGangi, R. Barton-Grimley, H.S. Halliday, T. Klausner, S. Kooi, J. Kostinek, T. Lauvaux, B. Lin, M.J. McGill, B. Meadows, **N.L. Miles**, A.R. Nehrir, J.B. Nowak, M.D. Obland, C. O'Dell, R.M. Pauly, S.J. Richardson, D. Richter, A. Roiger, C. Sweeney, J. Walega, P. Weibring, C.A. Williams, M.M. Yang, Y. Zhou, and K.J. Davis: Atmospheric Carbon and Transport - America (ACT-America) Datasets: Description, Management, and Delivery. *Earth and Space Science*, <https://doi.org/10.1029/2020EA001634>, 2021.

7. Lyon, D.R., B. Hmiel, R. Gautam, M. Omara, K. Roberts, Z.R. Barkley, K.J. Davis, **N.L. Miles**, V.C. Monteiro, S.J. Richardson, S. Conley, M.L. Smith, D.J. Jacob, L. Shen, D.J. Varon, A. Deng, X. Rudelis, N. Sharma, K.T. Story, A.R. Brandt, M. Kang, E.A. Kort, A.J. Marchese, and S.P. Hamburg: Concurrent variation in oil and gas methane emissions and oil price during the COVID-19 pandemic, *Atmos. Chem. Phys.*, 21, 6605–6626, <https://doi.org/10.5194/acp-21-6605-2021>, 2021.
8. **Miles, N.L.**, K.J. Davis, S.J. Richardson, T. Lauvaux, D.K. Martins, A.J. Deng, N. Balashov, K.R. Gurney, J. Liang, G. Roest, J.A. Wang, and J.C. Turnbull: The influence of near-field fluxes on seasonal CO₂ enhancements: Results from the Indianapolis Flux Experiment (INFLUX). *Carbon Balance Management*, 16:4, <https://doi.org/10.1186/s13021-020-00166-z>, 2021.
9. Lauvaux, T., K.R. Gurney, **N.L. Miles**, K.J. Davis, S.J. Richardson, A. Deng, B.J. Nathan, T. Oda, J.A. Wang, L.R. Hutyla, and J.C. Turnbull: Policy-relevant assessment of urban greenhouse gas emissions, *Environ. Sci. Tech.*, <https://doi.org/10.1021/acs.est.0c00343>, 2020.
10. Balashov, N.V., K.J. Davis, **N.L. Miles**, T. Lauvaux, S.J. Richardson, Z.R. Barkley, and T.A. Bonin: Background heterogeneity and other uncertainties in estimating urban methane flux: results from the Indianapolis Flux Experiment (INFLUX), *Atmos. Chem. Phys.*, 20, 4545–4559, <https://doi.org/10.5194/acp-20-4545-2020>, 2020.
11. Pal, S., K.J. Davis, T. Lauvaux, Y. Choi, J.P. DiGangi, S. Feng, B.J. Gaudet, K. Keller, **N.L. Miles**, M. McGill, M.D. Obland, R.M. Pauly, S.J. Richardson, D.R. Stauffer, and F. Zhang: Greenhouse gas changes across summer frontal boundaries in the Eastern United States, *J. Geophys. Res., Atmos.*, 125, doi.org/10.1029/2019JD030526, 2020.
12. Vimont, I.J., J.C. Turnbull, V.V. Petrenko, P.F. Place, C. Sweeney, **N. Miles**, S. Richardson, B.H. Vaughn, and J.W.C. White: An improved estimate for the $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ signatures of carbon monoxide produced from atmospheric oxidation of volatile organic compounds, *Atmos. Chem. Phys.*, 19, 8547–8562, <https://doi.org/10.5194/acp-19-8547-2019>, 2019.
13. Turnbull, J., A. Karion, K.J. Davis, T. Lauvaux, **N. Miles**, S. Richardson, C. Sweeney, K. McKain, S. Lehman, K. Gurney, R. Patarasuk, J. Liang, P. Shepson, A. Heimbürger, R. Harvey, and J. Whetstone: Synthesis of urban CO₂ emission estimates from multiple methods from the Indianapolis Flux Project (INFLUX), *Environ. Sci. Technol.*, 53 (1), 287–295, doi.org/10.1021/acs.est.8b05552, 2019.
14. Nathan, B.J., T. Lauvaux, J. Turnbull, S.J. Richardson, **N.L. Miles**, and K.R. Gurney: Source sector attribution of CO₂ emissions using an urban CO/CO₂ Bayesian inversion system, *J. Geophys. Res. Atmos.*, **123**, 13,611–13,621, doi.org/10.1029/2018JD029231, 2018.
15. **Miles, N.L.**, D.K. Martins, S.J. Richardson, C. Rella, T. Lauvaux, K.J. Davis, Z.R. Barkley, K. McKain, C. Sweeney: Calibration and field testing of cavity ring-down laser spectrometers measuring CH₄, CO₂, and $\delta^{13}\text{CH}_4$ deployed on towers in the Marcellus Shale region. *Atmos. Meas. Tech.*, **11**, 1273 – 1295, doi.org/10.5194/amt-11-1273-2018, 2018.
16. Richardson, S.J., **N.L. Miles**, K.J. Davis, T. Lauvaux, D. Martins, J. Turnbull, C. Sweeney: Tower measurement network of in-situ CO₂, CH₄, and CO in support of the Indianapolis FLUX (INFLUX) Experiment. *Elem. Sci. Anth.*, 5(59), doi.org/10.1525/elementa.140, 2017.
17. Barkley, Z.R., T. Lauvaux, K.J. Davis, A. Deng, Y. Cao, C. Sweeney, D. Martins, **N.L. Miles**, S. J. Richardson, T. Murphy, G. Cervone, A. Karion, S. Schwietzke, M. Smith, E.A. Kort, J.D. Maasakkers: Quantifying methane emissions from natural gas production in northeastern Pennsylvania. *Atmos. Chem. Phys.*, 13941 – 13966, doi.org/10.5194/acp-17-13941-2017, 2017.
18. **Miles, N.L.**, S.J. Richardson, T. Lauvaux, K.J. Davis, J. Turnbull, A. Karion, C. Sweeney, K.R. Gurney, R. Patarasuk, I. Razlivanov, M.O. Cambaliza, and P. Shepson: Quantification of urban atmospheric boundary layer greenhouse gas dry mole fraction enhancements: Results from the

- Indianapolis Flux Experiment (INFLUX). *Elem. Sci. Anth.*, **5(27)**, doi.org/10.1525/elementa.127, 2017.
19. Vimont, I.J., J.C. Turnbull, V.V. Petrenko, P.F. Place, A. Karion, **N.L. Miles**, S.J. Richardson, K. Gurney, R. Patarasuk, C. Sweeney, B. Vaughn, and J.W.C. White: Carbon monoxide isotopic measurements in Indianapolis constrain urban source isotopic signatures and support mobile fossil fuel emissions as the dominant wintertime CO source. *Elem. Sci. Anth.*, **5(63)**, doi.org/10.1525/elementa.136, 2017.
 20. Oda, T., T. Lauvaux, D. Lu, P. Rao, **N.L. Miles**, S.J. Richardson and K.R. Gurney: On the impact of granularity of space-based urban CO₂ emissions in urban atmospheric inversions: A case study for Indianapolis, IN. *Elem. Sci. Anth.*, **5(28)**, doi.org/10.1525/elementa.146, 2017.
 21. Davis, K.J., A. Deng, T. Lauvaux, **N.L. Miles**, S.J. Richardson, D.P. Sarmiento, K.R. Gurney, R.M. Hardesty, T.A. Bonin, W.A. Brewer, B.K. Lamb, P.B. Shepson, R.M. Harvey, M.O. Cambaliza, C. Sweeney, J.C. Turnbull, J. Whetstone and A. Karion: The Indianapolis Flux Experiment (INFLUX): A test-bed for anthropogenic greenhouse gas emission measurement and monitoring. *Elem. Sci. Anth.*, **5(21)**, doi.org/10.1525/elementa.188, 2017.
 22. Deng, A. T. Lauvaux, B. Gaudet, **N. Miles**, K. J. Davis, K. Wu, D. Sarmiento, M. Hardesty, T. Bonin and A. Brewer: Toward Reduced Transport Errors in a High Resolution Urban CO₂ Inversion System during Sept – Oct 2013 of the Indianapolis Flux Experiment (INFLUX). *Elem. Sci. Anth.*, **5(20)**, doi.org/10.1525/elementa.133, 2017.
 23. Lamb, B., M.O. Cambaliza, K. Davis, S. Edburg, T. Ferrara, C. Floerchinger, A. Heimbürger, S. Herndon, T. Lavoie, T. Lauvaux, D. Lyon, **N. Miles**, K. Prasad, S. Richardson, J. Roscioli, O. Salmon, P. Shepson, B. Stirm, J. Whetstone: Direct and indirect measurements and modeling of methane emissions in Indianapolis, IN. *Environ. Sci. Technol.*, **50(16)**, 8910–8917, doi:10.1021/acs.est.6b01198, 2016.
 24. Lauvaux, T., **N.L. Miles**, A. Deng, S.J. Richardson, M.O. Cambaliza, K.J. Davis, B. Gaudet, K.R. Gurney, J. Huang, D. O’Keeffe, Y. Song, A. Karion, T. Oda, R. Patarasuk, D. Sarmiento, P. Shepson, C. Sweeney, J. Turnbull, and K. Wu: High resolution atmospheric inversion of urban CO₂ emissions during the dormant season of the Indianapolis Flux Experiment (INFLUX), *J. Geophys. Res.*, **121**, doi:10.1002/2015JD024473, 2016.
 25. Ogle, S.M., K.J. Davis, T. Lauvaux, A. Schuh, D. Cooley, T. West, L. Heath, **N. Miles**, S. Richardson, F. Breidt, J. Smith, J. McCarty, K.R. Gurney, P.P. Tans, and A. Denning: An approach for verifying biogenic greenhouse gas emissions inventories with atmospheric CO₂ concentration data. *Environ. Res. Lett.*, **10**, doi:10.1088/1748/10/034012, 2015.
 26. Cambaliza, M.O., P.B. Shepson, J. Bogner, D.R. Caulton, B. Stirm, C. Sweeney, S.A. Montzka, K.R. Gurney, K. Spokas, O.E. Salmon, T.N. Lavoie, A. Hendricks, K. Mays, J. Turnbull, B.R. Miller, K. Davis, A. Karion, B. Moser, C. Miller, C. Obermeyer, J. Whetstone, K. Prasad, **N. Miles**, and S. Richardson: Quantification and source apportionment of the methane emission flux from the city of Indianapolis. *Elementa*, doi:10.125952/journal.elementa.000037, 2015.
 27. Turnbull, J., C. Sweeney, A. Karion, T. Newberger, P. Tans, S. Lehman, K.J. Davis, **N.L. Miles**, S.J. Richardson, T. Lauvaux, M.O. Cambaliza, P. Shepson, K. Gurney, R. Patarasuk, and A. Zondervan: Towards quantification and source sector identification of fossil fuel CO₂ emissions from an urban area: Results from the INFLUX experiment. *J. Geophys. Res. Atmos.*, doi: 10.1002/2014JD022555, 2014.
 28. Diaz, L.I., T. Lauvaux, K.J. Davis, **N.L. Miles**, S. Richardson, A.R. Jacobson, and A.E. Andrews: Model-data comparison of Mid-Continental Intensive (MCI) field campaign atmospheric CO₂ mole fractions. *J. Geophys. Res. Atmos.*, **119**, doi:10.1002/2014JD021593, 2014.

29. Cambaliza, M.O., P.B. Shepson, D. Caulton, B. Stirm, D. Samarov, K.R. Gurney, J. Turnbull, K.J. Davis, A. Possolo, A. Karion, C. Sweeney, B. Moser, A. Hendricks, T. Lauvaux, K. Mays, J. Whetstone, J. Huang, I. Razlivanov, **N.L. Miles**, and S.J. Richardson: Assessment of uncertainties of an aircraft-based mass-balance approach for quantifying urban greenhouse gas emissions. *Atmos. Chem. Phys.*, **14**, 9029-9050, doi:10.5194/acp-14-9029-2014, 2014.
30. Lauvaux, T., **N. Miles**, S. Richardson, A.J. Deng, K. Davis, D. Stauffer, G. Jacobson, C. Rella, G.P. Calonder, and P. DeCola: Urban emissions of CO₂ from Davos, Switzerland: The first real-time monitoring system using an atmospheric inversion technique. *J. Appl. Meteor. Climatol.*, **52**, 2654–2668, dx.doi.org/10.1175/JAMC-D-13-038.1, 2013.
31. Schuh, A. E., T. Lauvaux, T. O. West, A. S. Denning, K. J. Davis, **N. Miles**, S. Richardson, M. Uliasz, E. Lokupitiya, D. Cooley, A. Andrews, S. Ogle: Evaluating atmospheric CO₂ inversions at multiple scales over a highly inventoried agricultural landscape, *Global Change Biology*, **19**, 1424–1439, doi:10.1111/gcb.12141, 2013.
32. Rella, C. W., H. Chen, A.E. Andrews, A. Filges, C. Gerbig, J. Hatakka, A. Karion, **N.L. Miles**, S.J. Richardson, M. Steinbacher, C. Sweeney, B. Wastine, and C. Zellweger: High accuracy measurements of dry mole fractions of carbon dioxide and methane in humid air. *Atmos. Meas. Tech.*, **6**, 837-860, doi:10.5194/amt-6-837-2013, 2013.
33. Turnbull, J., D. Guenther, A. Karion, C. Sweeney, E. Anderson, A. Andrews, J. Kofler, **N. Miles**, T. Newberger, S. Richardson, and P. Tans: An integrated flask sample collection system for greenhouse gas measurements, *Atmos. Meas. Tech.*, **5**, 2321-2327, doi:10.5194/amt-5-2321-2012, 2012.
34. **Miles, N.L.**, S.J. Richardson, K.J. Davis, T. Lauvaux, A.E. Andrews, T.O. West, V. Bandaru, and E.R. Crosson: Large amplitude spatial and temporal gradients in atmospheric boundary layer CO₂ mole fractions detected with a tower-based network in the U.S. Upper Midwest. *J. Geophys Res. B*, **117**, G01019, doi:10.1029/2011JG001781, 2012. (*highlighted article*)
35. Richardson, S.J., **N.L. Miles**, K.J. Davis, E.R. Crosson, C. Rella, and A.E. Andrews: Field testing of cavity ring-down spectroscopic analyzers measuring carbon dioxide and water vapor. *J. Atmos. Oceanic Tech.*, **29**, 397 – 406, 2012.
36. Lauvaux, T., A. Schuh, M. Uliasz, S. Richardson, **N. Miles**, A. Andrews, C. Sweeney, L. Diaz, D. Martins, P. Shepson, K. Davis: Constraining the CO₂ budget of the corn belt: Exploring uncertainties from the assumptions in a mesoscale inverse system. *Atmos. Chem. Phys.*, **12**, 337-354, doi:10.5194/acp-12-337-2012, 2012.
37. Stephens, B.B., **N.L. Miles**, S.J. Richardson, K.J. Davis, and A. Watt: Single-cell NDIR-based analyzers for tower measurements of atmospheric CO₂. *Atmos. Meas. Tech.*, **4**, 2737-2748, doi:10.5194/amt-4-2737-2011, 2011.
38. Corbin, K.D., A.S. Denning, E.Y. Lokupitiya, A.E. Schuh, **N.L. Miles**, K.J. Davis, S.J. Richardson, I.T. Baker: Assessing the impact of crops on regional CO₂ fluxes and atmospheric concentrations. *Tellus*, **62B**, 521–532, doi: 10.1111/j.1600-0889.2010.00485.x, 2010.
39. **Miles, N.L.**, and J. Verlinde: 94-GHz cloud radar observations in lake-effect conditions. Part I: Transient linear organization, *Mon. Wea. Rev.*, **133(3)**, 677–691, 2005.
40. **Miles, N.L.**, and J. Verlinde: 94-GHz cloud radar observations in lake-effect conditions. Part II: Nonlinear scale interactions, *Mon. Wea. Rev.*, **133(3)**, 692–706, 2005.
41. **Miles, N.L.**, J.C. Wyngaard, and M. J. Otte: Turbulent pressure statistics: Large-eddy simulation and comparison to experimental data, *Bound.-Layer Meteor.*, **113(2)**, 161–185, 2004.
42. Winstead, N.S., J. Verlinde, S.T. Arthur, F. Jaskiewicz, M. Jensen, N. Miles, and D. Nicosia: High resolution radar observations of mammatus. *Mon. Wea. Rev.*, **129**, 159–166, 2001.

43. **Miles, N.L.**, J. Verlinde, and E.E. Clothiaux: Cloud droplet size distributions in low-level stratiform clouds. *J. Atmos. Sci.*, **57**, 295–311, 2000.

BOOK CHAPTER

- **Miles, N.L.**, K.J. Davis, and J.C. Wyngaard: Detecting leaks from belowground CO₂ reservoirs using eddy covariance. *Chapter 21 in Carbon dioxide storage in deep geologic formations for climate change mitigation: Vol. 2: Geologic storage of carbon dioxide with monitoring and verification*, D.C. Thomas and S.M. Benson, eds., Elsevier Ltd., 1031–1044, 2005.

MANUSCRIPT SUBMITTED FOR REVIEW

- Balashov, N.V., L.E. Ott, B. Weir, S. Basu, K.J. Davis, **N.L. Miles**, J. Joiner, A.M. Thompson, and R.M. Stauffer: Flood-induced net ecosystem exchange alteration in the midwestern and southern regions of the United States in 2019. In review, *J. Geophys. Res. Atmos.*

MANUSCRIPTS IN PREPARATION

- Vogel, E., K.J. Davis, K. Wu, **N.L. Miles**, S.J. Richardson, K.R. Gurney, and V. Monteiro: Using Eddy Covariance to Measure the Effects of COVID-19 Restrictions on CO₂ Emissions in Indianapolis, IN. In preparation.
- Barkley, Z.R., K.J. Davis, **N.L. Miles**, S. Richardson, A. Deng, B. Hmiel, and D. Lyon: Quantification of oil and gas methane emissions in the Delaware and Marcellus Basins using a network of continuous tower-based measurements. In preparation.
- Monteiro, V., **N.L. Miles**, K.J. Davis, A.J. Deng, Y. Pan, T. Lauvaux, S. Richardson, and J. Turnbull: Modeling nocturnal data for determination of urban greenhouse gas emissions. In preparation.

TECHNICAL REPORTS TO SPONSOR

- Coordinated quarterly technical reports to EDF for the project “Atmospheric inversions of CH₄ in the Permian Basin”, 2020 – current.
- Coordinated semi-annual technical reports to NIST for the project “Estimation of Urban Greenhouse Gas Emissions Using Regional Atmospheric Inversions”, 2010 – current.
- Coordinated semi-annual technical reports to Purdue University for the project “ARRA: Decadal Development, Improvement, and Assessment of the Accuracy of Aircraft-Based Mass Balance Measurements of the Integrated Urban Emission Fluxes of Greenhouse Gases”, 2010 – 2012.
- Contributed to technical reports for projects listed in “Research Grants” section above.

OTHER REPORTS

- Turnbull, J.C., P. DeCola, K. Mueller, and F. Vogel (lead authors), A. Agusti-Panareda, D. Ahn, S. Baidar, A. Brewer, D. Brunner, H. Chen, J. Chen, F. Chevallier, A. Christen, R. Cohen, K.J. Davis, F. Dietrich, R. Engelen, C. Feigenwinter, B. Gioli, K. Gurney, K. Hajny, S. Hammer, F. Hase, T.W. Hilton, L. Hutyra, L. Järvi, A. Karion, J. Kim, T. Lauvaux, J. Lin, Z. Loh, I. Lopez-Coto, **N. Miles**, L. Mitchell, T. Nehrkorn, N. Mostafavi Pak, D. Papale, I. Pisso, J. Pitt, M. Ramonet, P. Rayner, T. Roeckman, A. Roiger, P. Shepson, A. Vermeulen, I. Vimont, R. Vogt, J.R. Whetstone, J. Winbourne, and I. Xueref-Remy: IG3IS Urban Greenhouse Gas Emission Observation and Monitoring Best Research Practices: World Meteorological Organization (WMO) Global Atmosphere Watch (GAW) Integrated Global Greenhouse Gas Information System (IG3IS) Report 2021, available at <https://ig3is.wmo.int/en/events/ig3is-urban-greenhouse-gas-emission-observation-and-monitoring-best-research-practices>.

CONSULTING

- Consultant for “Sentinel Lands” exhibition, Rouse Gallery, The Stuckeman School of Architecture and Landscape Architecture, The Pennsylvania State University, January – March 2022.
- Consultant to the Bay Area Air Quality Division, San Francisco, CA, for construction, testing, and initial deployment of isotopic methane instrument, August 2016 – February 2017. .

U.S. PATENT

- Davis, K.J., T. Lauvaux, **N.L. Miles**, S.J. Richardson: System and method for measurement of temporal changes in trace gas fluxes, U.S. Patent, Publication number: US20140257782 A1, 2014.

INVITED AND PLENARY PRESENTATIONS

- **Miles, N.L. (invited seminar)**. Oil and gas basin methane monitoring: Results from the Permian basin. Presented at the Carlsbad Caverns National Park, The Pennsylvania State University, August 2022.
- **Miles, N.L. (colloquium)**. Oil and gas basin methane monitoring: Results from the Marcellus and Permian basins. Presented at the Department of Meteorology and Atmospheric Science, The Pennsylvania State University, September 2021.
- **Miles, N.L. (invited seminar)**. Methane isotopic ratio measurements in the Marcellus and Permian oil and natural gas regions. Presented at the Detection and Attribution of Regional greenhouse gas Emissions in the U.K. (DARE-UK) seminar series, May 2021.
- **Miles, N. (invited seminar)**. Atmospheric-based greenhouse gas monitoring: What have we learned from studies in Indianapolis, Davos, and the Marcellus Shale Gas region? Presented at the Bay Area Air Quality Division, San Francisco, CA, February 2017.
- **Miles, N. (invited talk)**, T. Lauvaux, K. Davis, S. Richardson, L. McGowan, D. Sarmiento, C. Sweeney, A. Karion, R.M. Hardesty, J. Turnbull, L. Iraci, K. Gurney, I. Razlivanov, M.O. Cambaliza, P. Shepson, and J. Whetstone. On network design for the detection of urban greenhouse gas emissions: Results from the Indianapolis Flux Experiment (INFLUX). Talk A44F-01 presented at the 2013 Fall AGU Meeting, San Francisco, CA, December 2013.

- **Miles, N. (invited talk)**, K. Davis, S. Richardson, and T. Lauvaux. Regional- and urban-scale measurements of greenhouse gases: RING2 and INFLUX projects. Talk presented at the Air and Waste Management Association Symposium on Air Quality Measurement Methods and Technology, Los Angeles, CA, November 2010.
- **Miles, N. (plenary talk)**, A. Andrews, K. Corbin, K. Davis (presenter due to illness), A.S. Denning, D. Martins, S. Richardson, P. Shepson, and C. Sweeney. NACP's Mid-Continent Intensive: Atmospheric results. Talk presented at the 2nd North American Carbon Program (NACP) All-Investigators Meeting, San Diego, CA, February 2009.
- **Miles, N. (invited talk)**, S. Richardson, K. Davis, and E. Crosson. Temporal and Spatial Variability in Regional-scale CO₂ mixing ratios as measured during the Mid-Continental Intensive study. Talk presented at the AGU Fall Meeting, Abstract A31L-04, San Francisco, CA, December 2008.
- **Miles, N. (plenary talk)**, K. Davis, and S. Richardson. Temporal and spatial variability of terrestrial biological fluxes of CO₂ and atmospheric CO₂ mixing ratios. Talk presented at the ASCENDS (Active Sensing of CO₂ Emissions of Nights, Days, and Seasons) workshop, Ann Arbor, MI, July 2008.
- **Miles, N. (invited seminar)**, S. Richardson, and K. Davis. Ring 2: High-precision, high-accuracy CO₂ mixing ratio measurements in support of the NACP Mid-Continent Intensive. Picarro, Inc., San Francisco, CA, June 2008.
- **Miles, N.L. (invited seminar)**, and J. Verlinde. Observations of transient linear organization in lake-effect clouds. Illinois State Water Survey, Champaign, IL, March 2003.

1st or 2nd AUTHOR CONFERENCE ORAL PRESENTATIONS

- Davis, K.J., **N. Miles**, S. Richardson, S. Murphy, L. Zhang, C. Jin, M. Berzonsky, E. Vogel, K. Wu, S. Gourdjji, D.W. Allen, L. Hutyra, K.R. Gurney, G.S. Roest, and J.C. Turnbull: Urban eddy-covariance: Why, how and where? Talk presented at the Fall 2021 American Geophysical Union Meeting, New Orleans, LA / REMOTE, December 2021.
- Monteiro, V., **N.L. Miles**, S.J. Richardson, J. Turnbull, A. Karion, J. Kim, K. Verhulst, L. Mitchell, J.C. Lin, M. Sargent, S. Wofsy, F. Vogel, K.J. Davis: Observations From Multi-City Greenhouse Gas Networks Detect the Abrupt Changes in Emissions During the COVID-19 Lockdown. Abstract submitted to the Fall 2021 American Geophysical Union Meeting, New Orleans, LA / REMOTE, December 2021.
- Davis, K.J., **N. Miles**, S. Richardson, S. Murphy, L. Zhang, C. Jin, M. Berzonsky, E. Vogel, K. Wu, S. Gourdjji, D.W. Allen, L. Hutyra, K.R. Gurney, G.S. Roest, and J.C. Turnbull: Urban eddy-covariance: Why, how and where? Talk presented at the 2021 Ameriflux Annual Meeting, (REMOTE), September 2021.
- Monteiro, V., **N. Miles**, K. Davis, E. Vogel, S. Markus, S. Richardson, J. Turnbull, A. Karion, J. Kim, K. Verhulst, V. Yadav, L. Mitchell, M. Sargent, S. Wofsy, and F. Vogel: What multi-city atmospheric observations tell us about greenhouse gas emissions during the COVID-19 shutdown. Talk presented at the electronic Global Monitoring Annual Conference (eGMAC), May 2020.
- **Miles, N.**, N. Balashov, K. Davis, T. Lauvaux, V. Monteiro, S. Richardson, and K. Wu. Progress from the Indianapolis Flux (INFLUX) tower-based urban greenhouse gas network. Talk presented at the 20th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), Jeju, Republic of Korea, September 2019.
- **Miles, N.**, T. Lauvaux, N. Balashov, K. Davis, S. Richardson, A. Deng, B. Gaudet, K. Gurney, R. Patarasuk, J. Liang, and J. Turnbull. Detection of trends in urban CO₂ emissions: Results from the INFLUX tower network. Talk presented at the 19th WMO/IAEA Meeting on Carbon Dioxide, Other

Greenhouse Gases and Related Measurement Techniques (GGMT), Dubendorf, Switzerland, September 2017.

- **Miles, N.**, D. Martins, S. Richardson, C. Rella, T. Lauvaux, K. Davis, Z. Barkley, K. McKain, and C. Sweeney. Calibration and field testing of cavity ring-down laser spectrometers measuring methane mole fraction and isotopic ratio deployed on towers in the Marcellus Shale region. Talk presented at the 19th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), Dubendorf, Switzerland, September 2017.
- **Miles, N.**, S. Richardson, T. Lauvaux, K. Davis, D. Martins, C. Sweeney, A. Karion, J. Turnbull, K. Gurney, R. Patarasuk, and I. Razlivanov. Indianapolis flux (INFLUX) in-situ network: quantification of urban atmospheric boundary layer greenhouse gas dry mole fraction measurements. Talk presented at the 18th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), La Jolla, CA, September 2015.
- **Miles, N.**, S. Richardson, K. Davis, T. Lauvaux, A.J. Deng, C. Sweeney, A. Karion, J. Turnbull, K. Gurney and R. Patarasuk. Detectability and Quantification of Atmospheric Boundary Layer Greenhouse Gas Dry Mole Fraction Enhancements from Urban Emissions: Results from INFLUX. Talk presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2015.
- **Miles, N.**, T. Lauvaux, K. Davis, S. Richardson, D. Sarmiento, K. Wu, A. Karion, C. Sweeney, I. Vimont, J. Turnbull, R.M. Hardesty, A. Brewer, K. Gurney, I. Razlivanov, L. Iraci, P. Hillyard, P. Shepson, M.O. Cambaliza, and J. Whetstone. Detection and quantification of urban greenhouse gas emissions: Results from the INFLUX project. Talk presented at the 42nd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, 20 May – 21 May 2014.
- Lauvaux, T., **N. Miles**, S. Richardson, K. Davis, A.J. Deng, R.M. Hardesty, P. Shepson, M.O. Cambaliza, L. Iraci, P. Hillyard, K. Gurney, A. Karion, L. McGowan, A. Possolo, I. Razlivanov, D. Sarmiento, C. Sweeney, J. Turnbull, and J. Whetstone. Urban scale atmospheric inversion of CO₂ emissions using a high-density surface tower network over Indianapolis area. Talk A44F-02 presented at the 2013 Fall AGU Meeting, San Francisco, CA, December 2013.
- **Miles, N.**, M.O. Cambaliza, K. Davis, R.M. Hardesty, L. Iraci, K. Gurney, A. Karion, T. Lauvaux, L. McGowan, S. Richardson, D. Sarmiento, P. Shepson, C. Sweeney, J. Turnbull, and J. Whetstone. On network design for the detection of urban greenhouse gas emissions: Results from the Indianapolis Flux Experiment (INFLUX). Talk presented at the 9th International Carbon Dioxide Conference, Beijing, China, 3-7 June 2013.
- **Miles, N.**, S. Richardson, K. Davis, T. Lauvaux, D. Sarmiento, L. McGowan, J. Turnbull, C. Sweeney, A. Karion, K. Gurney, M.O. Cambaliza, and P.B. Shepson. Tower-based measurements of CO₂, CO, and CH₄ mole fractions in an urban environment. Talk GC53B-1284, presented at the 2012 Fall AGU Meeting, San Francisco, CA, December 2012.
- **Miles, N.**, S. Richardson, A. Andrews, K. Corbin, K. Davis, L. Diaz, A.S. Denning, E. Lokupitiya, D. Martins, P. Shepson, C. Sweeney, and T. West. Atmospheric results from the NACP's Mid Continent Intensive field campaign. Talk presented at the 8th International Carbon Dioxide Conference, Jena, Germany, September 2009.
- Richardson, S., **N. Miles**, K. Davis, and E. Crosson. Field testing and error analysis of cavity ringdown spectroscopy instruments measuring CO₂. Talk presented at the 15th WMO/IAEA Meeting on Experts on Carbon Dioxide, Other Greenhouse Gases, and Related Tracer Measurement Techniques, Jena, Germany, September 2009.
- Richardson, S., **N. Miles**, K. Davis, E. Crosson, A. S. Denning, D. Zupanski, and M. Uliasz. "Ring 2": High-precision, high-accuracy CO₂ mixing ratio measurements in support of the NACP's Mid Continent Intensive. Talk presented at the ChEAS Meeting, Minocqua, WI, May 2007.

- **Miles, N.L.**, K.J. Davis, and J.C. Wyngaard. Evaluation of the eddy-covariance method for the detection of leaks from underground CO₂ reservoirs. Preprints, talk presented at the Seventh International Conference on Greenhouse Control Technologies, Vancouver, BC, Canada, 2004.
- **Miles, N.L.**, D.M. Babb, and J. Verlinde. Multi-scale analysis of in-cloud vertical velocity derived from 94-GHz Doppler radar. Preprints, talk presented at the 14th Symposium on Boundary Layers and Turbulence, Snowmass, CO, and Preprints, 13th International Conference on Clouds and Precipitation, Reno, NV, 2000.
- **Miles, N.L.**, J. Verlinde, and E.E. Clothiaux. Cloud drop size distributions in low-level stratiform clouds. Preprints, talk presented at the 10th Conf. on Cloud Phys., Everett, WA, 1998.

1st or 2nd AUTHOR CONFERENCE POSTER PRESENTATIONS

- **Miles, N.**, D. Wesloh, Y. Cui, S. Feng, Z. Barkley, A. Andrews, L. Hu, K. Thonig, S. Prinzevalli, W. Callahan, and K. Davis: Progress towards diagnosis of North American CO₂ and CH₄ fluxes with the expanded in-situ measurement network. Poster presented at the Integrated Carbon Observation System Science Conference, September 2022.
- **Miles, N.**, D. Wesloh, Y. Cui, K. Davis, S. Feng, Z. Barkley, A. Andrews, L. Hu, K. Thonig, and S. Prinzevalli: Progress towards diagnosis of North American CO₂ and CH₄ flux with the expanded in-situ measurement network. Poster presented at the electronic Global Monitoring Annual Conference (eGMAC), May 2022.
- Monteiro, V., **N. Miles**, K. Davis, S. Richardson, J. Turnbull, A. Karion, and J. Kim: A multi-city study of the impact of the COVID-19 shutdown on greenhouse gas signatures in the atmosphere using various analysis techniques. Poster presented at the 7th North American Carbon Program Open Science Meeting, (REMOTE), March 2021.
- **Miles, N.L.**, K.J. Davis, S.J. Richardson, T. Lauvaux, D.K. Martins, A.J. Deng, N. Balashov, K.R. Gurney, J. Liang, G. Roest, J.A. Wang, and J.C. Turnbull: The influence of near-field fluxes on seasonal CO₂ enhancements: Results from the Indianapolis Flux Experiment (INFLUX). Poster presented at the 7th North American Carbon Program Open Science Meeting, (REMOTE), March 2021.
- Monteiro, V., **N. Miles**, K. Davis, A.J. Deng, Y. Pan, S. Richardson, and T. Lauvaux. On the use of nocturnal tower data in inversions of urban greenhouse gas emissions. Poster presented at the 7th North American Carbon Program Open Science Meeting, (REMOTE), March 2021.
- Larson, C.J., **N. Miles**, S. Feng, S.J. Richardson, T. Lauvaux, and K.J. Davis: Detection of changes in CO₂ enhancements in State College, Pennsylvania. Poster presented at the 101st Annual Meeting of the American Meteorological Society, A095-0007, (REMOTE), January 2021.
- Monteiro, V., **N. Miles**, K. Davis, S. Richardson, J. Turnbull, A. Karion, and J. Kim: Changes in greenhouse gas emissions observed in Indianapolis, IN during the COVID-19 shutdown. Presented at the Fall 2020 American Geophysical Union Meeting, (REMOTE), December 2020.
- Monteiro, V., **N. Miles**, K. Davis, A.J. Deng, Y. Pan, T. Lauvaux, and S. Richardson. Insights for modeling nocturnal data for determination of urban greenhouse gas emissions. Poster presented at the Brazilian Workshop for Micrometeorology, Sao Jose dos Campos, Brazil, November 2019.
- **Miles, N.L.**, N. Balashov, K. Davis, S. Richardson, T. Lauvaux, A. Deng, C. Sweeney, J. Turnbull, and K. Gurney. Improving urban CO₂ emissions estimates via synergistic use of inventories and tower-based methods. Poster presented at the CO₂-USA Urban Synthesis and Analysis Workshop, Salt Lake City, UT, October 2018.
- **Miles, N.L.**, D.K. Martins, S.J. Richardson, C. Rella, T. Lauvaux, K.J. Davis, Z. Barkley, K. McKain, and C. Sweeney. Calibration and Field Testing of Cavity Ring-Down Laser Spectrometers Measuring

CH₄ Mole Fraction and the Isotopic Ratio of ¹³CH₄ and Deployed on Towers in the Marcellus Shale Region. Poster presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2017.

- **Miles, N.L.**, D.K. Martins, S.J. Richardson, C. Rella, T. Lauvaux, K.J. Davis, Z.R. Barkley, K. McKain, and C. Sweeney. Calibration and Field Testing of Cavity Ring-Down Laser Spectrometers Measuring CH₄ Mole Fraction and the Isotopic Ratio of ¹³CH₄ and Deployed on Towers in the Marcellus Shale Region. Poster presented at the 6th North American Carbon Program Principal Investigators Meeting, Bethesda, MD, March 2017.
- **Miles, N.L.**, S.J. Richardson, D.K. Martins, C. Rella, T. Lauvaux, K.J. Davis, Z. Barkley, and K. McKain. Tower-based measurements of CH₄ dry mole fraction and δ¹³CH₄ in the northeastern Pennsylvania Marcellus Shale Gas Region. Poster presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2016.
- Richardson, S.J., N.L. Miles, K.J. Davis, T. Lauvaux, and J.C. Turnbull. CO₂, CO, and CH₄ Surface In-Situ Measurement Network in support of the Indianapolis Flux (INFLUX) Experiment. Poster presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2016.
- Martins, D.K., N.L. Miles, S.J. Richardson, C. Rella, C. Arata, T. Sowers, T. Lauvaux, and K.J. Davis. Characterization of cavity ring-down spectrometers for methane stable isotopes. Poster presented at presented at the 18th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), La Jolla, CA, September 2015.
- Richardson, S.J., N.L. Miles, T. Lauvaux, K.J. Davis, D.K. Martins, T. West, S. Ogle, A. Schuh, J. Collatz, and C. Williams, Network of Carbon Dioxide Measurements in the Southeast United States – Results from the Gulf Coast Intensive. Poster presented at the 18th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), La Jolla, CA; September 2015.
- **Miles, N.L.**, S.J. Richardson, K.J. Davis, T. Lauvaux, A. Deng, C. Sweeney, A. Karion, J.C. Turnbull, K.R. Gurney, and R. Patarasuk. High-density surface tower network of in-situ greenhouse gas mole fraction observations in Indianapolis, IN. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Richardson, S., N. Miles, T. Lauvaux, K. Davis, J. Turnbull, A. Karion, and C. Sweeney. CO₂, CO, and CH₄ surface in situ measurement network uncertainty analysis and calibration procedures in support of the INFLUX Experiment. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- **Miles, N.**, T. Lauvaux, K. Davis, S. Richardson, A.J. Deng, D. Sarmiento, K. Wu, C. Sweeney, A. Karion, R.M. Hardesty, A. Brewer, J. Turnbull, L. Iraci, P. Hillyard, J. Podolske, K. Gurney, R. Patarasuk, M.O. Cambaliza, P. Shepson, and J. Whetstone. Greenhouse gas emissions of Indianapolis using a high-density surface tower network and an atmospheric inversion. Abstract A510-05, poster presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.
- Richardson, S., N. Miles, T. Lauvaux, K. Davis, C. Normile, T. West, S. Ogle, A. Schuh, J. Collatz, C. Williams, and K. Gurney. Regional Carbon Cycle and Atmospheric Inversions in the Southeastern United States (U.S.) – Optimizing an Observational Network. Poster presented at the 42nd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, May 2014.
- **Miles, N.**, T. Lauvaux, K. Davis, S. Richardson, D. Sarmiento, C. Sweeney, A. Karion, R.M. Hardesty, J. Turnbull, L. Iraci, K. Gurney, I. Razlivanov, M.O. Cambaliza, P. Shepson, and J. Whetstone. Urban greenhouse gas mole fraction in-situ measurements: Results from the Indianapolis Flux Experiment (INFLUX). Poster presented at the European Geosciences Union General Assembly, Vienna, Austria, May 2014.

- **Miles, N.**, M.O. Cambaliza, K. Davis, R.M. Hardesty, L. Iraci, K. Gurney, A. Karion, T. Lauvaux, L. McGowan, S. Richardson, D. Sarmiento, P. Shepson, C. Sweeney, J. Turnbull, and J. Whetstone. In-situ tower-based greenhouse gas measurements in an urban environment: Instrument performance, network design and results from INFLUX. Poster presented at the 2013 GGMT meeting, Beijing, China, June 2013.
- **Miles, N.**, S. Richardson, K. Davis, T. Lauvaux, D. Sarmiento, L. McGowan, J. Turnbull, C. Sweeney, A. Karion, K. Gurney, M.O. Cambaliza, and P. Shepson: Tower-based measurements of CO₂, CO, and CH₄ mole fractions in an urban environment. Poster presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, February 2013.
- **Miles, N.L.**, S.J. Richardson, T. Lauvaux, L. McGowan, D. Sarmiento, K.J. Davis, J. Turnbull, C. Sweeney, K. Gurney, M.O. Cambaliza, and P. Shepson. Tower-based CRDS Greenhouse Gas Measurements in an Urban Environment: Calibration, Field Tests, and Results from the INFLUX Project. Poster presented at the 16th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases, and Related Measurement Techniques, Wellington, New Zealand, October 2011.
- **Miles, N.**, T. Lauvaux, McGowan, S. Richardson, D. Sarmiento, K. Davis, J. Turnbull, C. Sweeney, Cambaliza, and P. Shepson. Tower-based greenhouse gas measurements and flux estimates in an urban environment. Poster presented at the American Chemical Society Fall Meeting, Denver, CO, August 2011.
- **Miles, N.**, S. Richardson, K. Davis, T. Lauvaux, J. Turnbull, C. Sweeney, M.O. Cambaliza, and P. Shepson, Tower-based greenhouse gas measurements in an urban environment. Poster presented at the 2011 Ameriflux Science Meeting & 3rd NACP All-Investigators Meeting, New Orleans, LA, February 2011.
- Richardson, S., **N. Miles**, K. Davis, E. Crosson, A. Van Pelt, and E. Wahl. Field Testing and Error Analysis of Cavity Ring Down Spectroscopy Instruments Measuring CO₂. Poster presented at the Fall 2009 AGU Meeting, EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract B51E-0343, San Francisco, CA, December 2009.
- **Miles, N.**, S. Richardson, K. Davis, E. Crosson, A. S. Denning, N. Kershner, and B. Haupt. Temporal and Spatial Patterns in Regional- and Continental-scale CO₂ mixing ratio measurements. Poster presented at the NOAA Earth System Research Laboratory Global Monitoring Division Annual Meeting, Boulder, CO, May 2008.
- Richardson, S., **N. Miles**, K. Davis, E. Crosson, A. S. Denning, D. Zupanski, and M. Uliasz. The Second "Ring of Towers": Over-sampling the Mid Continent Intensive Region CO₂ Mixing Ratio. Poster presented at the AGU Fall Meeting, San Francisco, CA, December 2007.
- **Miles, N.**, S. Richardson, D. Tyndall, K. Davis, N. Parazoo, and A. S. Denning. Well-calibrated CO₂ observations on AmeriFlux towers to constrain the North American CO₂ budget: A contribution to the continental atmospheric CO₂ observation network. Poster presented at the NACP Investigators Meeting, Colorado Springs, CO, January 2007.
- Richardson, S.J., **N.L. Miles**, K.J. Davis, M. Rambukkange, and M.P. Butler. Progress towards a continental, flux-tower based CO₂ network. Abstracts, poster presented at the 13th Meeting of Experts on Carbon Dioxide Concentration and Related Tracer Measurement Techniques, Boulder, CO, 2005.
- Richardson, S.J., **N.L. Miles**, K.J. Davis, M. Uliasz, and S. Denning. Estimations of regional CO₂ fluxes: Analysis of concentration data from the ring of towers in northern Wisconsin. Abstracts, poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 2004.
- Richardson, S.J., **N.L. Miles**, K.J. Davis, W. Wang, A.S. Denning, P.S. Bakwin, J. Berry, and B. Helliker. Regional CO₂ Fluxes Using a Network of Carbon Dioxide Mixing Ratio Sensors. EOS Trans. AGU, poster, 84(47), Fall Meet. Suppl., Abstract B42B-04, San Francisco, CA, 2003.

- **Miles, N.L.**, and J. Verlinde. Nonlinear scale interactions in lake-effect clouds. Preprints, poster presented at the 15th Symposium on Boundary Layers and Turbulence, Wageningen, The Netherlands, 2002. **(student poster presentation award)**
- **Miles, N.L.**, J.C. Wyngaard, and M.J. Otte. Turbulent pressure statistics. Preprints, poster presented at the 15th Symposium on Boundary Layers and Turbulence, Wageningen, The Netherlands, 2002.
- **Miles, N.L.**, D.M. Babb, and J. Verlinde. Particle and turbulent vertical velocities from cloud radar measurements. Proceedings, poster presented at the Ninth Annual ARM Science Team Meeting, San Antonio, TX, 1999.
- Babb, D.M., **N.L. Miles**, and J. Verlinde. A constrained linear inversion algorithm for removing turbulent broadening in Doppler power spectra. Preprints, poster presented at the Symposium on remote sensing of cloud parameters: Retrieval and validation, Delft University of Technology, The Netherlands, 1999.
- **Miles, N.L.**, D.M. Babb, and J. Verlinde. Vertical velocity statistics as derived from 94-GHz radar measurements. Preprints, poster presented at the 29th Int. Conf. on Radar Meteor., Montreal, Quebec, Canada, 1999.

OTHER CONFERENCE PRESENTATIONS

- Berzonsky, M., S. Murphy, **N. Miles**, K. Davis, S. Richardson, and A. Kemanian: Investigating Agricultural CO₂ fluxes to improve the accuracy of urban greenhouse gas emissions estimates. Poster presented at the American Meteorological Society Annual Student Conference, Houston, TX, January 2022.
- Barkley, Z., K.J. Davis, **N. Miles**, S. Richardson, D.R. Lyon, B. Hmiel, and A. Deng: Analysis of CH₄ emissions and trends in the Permian Basin using continuous measurements from an observational tower network. Poster presented at the Fall 2021 American Geophysical Union Meeting, New Orleans, LA / REMOTE, December 2021.
- Davis, K., C. Jin, **N. Miles**, S. Murphy, E. Vogel, and K. Wu: Urban eddy-covariance: How, why and where? Invited presentation to the EU's Integrated Carbon Observing System colloquium series on urban system studies, (REMOTE), November 2021.
- Karion, A., S. Gourdji, K. Mueller, I. Lopez-Coto, S. Ghosh, J. Whetstone, J. Lin, L. Hutyra, S. Wofsy, M. Sargent, K. Gurney, P. Shepson, J. Pitt, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, J. Turnbull, R. Dickerson, R. Salawitch, X. Ren, V. Yadav, R. Weiss, R. Duren, R. Keeling, C. Miller, J. Miller, K. Verhulst, J. Kim, C. Sweeney, E. Kort, R. Cohen, and A. Turner: Advances in urban greenhouse gas inversion research in the United States. Plenary talk presented at the 7th North American Carbon Program Open Science Meeting, (REMOTE), March 2021.
- Turnbull, J., A. Karion, J. Kim, K. Verhulst, V. Yadav, C. Miller, R. Keeling, R. Weiss, **N. Miles**, S. Richardson, K. Davis, V. Monteiro, E. Vogel, S. Markus, L. Mitchell, J. Lin, M. Sargent, S. Wofsy, and F. Vogel: Urban greenhouse gas emission response to COVID-19 shutdowns. Talk presented at the Fall 2020 American Geophysical Union Meeting, San Francisco, CA, (REMOTE) December 2020.
- Lyon, D., B. Hmiel, K. Roberts, M. Omara, S. Hamburg, R. Gautam, M. Smith, K. Davis, Z. Barkley, **N. Miles**, S. Richardson, V. Monteiro, D. Varon, L. Shen, and D. Jacob: Temporal variability in Permian Basin methane emissions during a COVID-19 triggered period of volatile oil prices. Talk presented at the Fall 2020 American Geophysical Union Meeting, San Francisco, CA, (REMOTE) December 2020.
- Balashov, N.V., L.E. Ott, B. Weir, K.J. Davis, **N.L. Miles**, A.M. Thompson, R.M. Stauffer: Short Term Effects of 2019 Early Summer Floods on Atmospheric CO₂ in the Midwestern and Southern Regions of

the United States as Seen from the NASA GEOS Model. Presented at the Fall 2020 American Geophysical Union Meeting, San Francisco, CA, (REMOTE) December 2020.

- Vogel, E., K.J. Davis, K. Wu, **N.L. Miles**, S.J. Richardson, and V. Monteiro: Using Eddy Covariance to Measure COVID-19's Effects on CO₂ Emissions in Indianapolis, IN. Presented at the Fall 2020 American Geophysical Union Meeting, San Francisco, CA, (REMOTE) December 2020.
- Turnbull, J., A. Karion, J. Kim, K. Verhulst, V. Yadav, C. Miller, R. Keeling, R. Weiss, **N. Miles**, S. Richardson, K. Davis, V. Monteiro, E. Vogel, S. Markus, L. Mitchell, J. Lin, M. Sargent, S. Wofsy, and F. Vogel: Urban greenhouse gas emission response to COVID-19 shutdowns. Talk presented at the New Zealand Meteorological Society Conference, November 2020.
- Davis, K.J., N. Balashov, Z. Barkley, A. Deng, L. Diaz-Isaac, S. Feng, B. Gaudet, T. Lauvaux, **N. Miles**, Y. Pan, S. Richardson, and D. P. Sarmiento: What Have Studies of Urban Greenhouse Gas Emissions Taught Us about Urban Meteorological Simulations? Talk presented at the 100th Annual AMS Meeting, Boston, MA, January 2020.
- Davis, K.J., N. Balashov, R.R. Dickerson, K. Gurney, A. Karion, T. Lauvaux, I. Lopez-Coto, **N. Miles**, X. Ren, S. Richardson, P. Shepson, and J. Turnbull: Progress in Quantifying Urban Greenhouse Gas Fluxes Using Atmospheric Measurements. Talk presented at the 100th Annual AMS Meeting, Boston, MA, January 2020.
- Lin, J.C., L. Hutyrá, L. Mitchell, C. Loughner, A. Stein, K. Lusk, C. Gately, S.C. Wofsy, D. Mallia, R.C. Cohen, K. Davis, R.M. Duren, A. Karion, R.F. Keeling, J. Kim, **N. Miles**, A. Guha, S. Newman, A. Rice, S. Richardson, M. Sargent, J. Turnbull, K.R. Verhulst, and R.F. Weiss: The CO₂ Urban Synthesis and Analysis ("CO₂-USA") Project: Results and Deliverables. Presented at the Fall 2019 American Geophysical Union Meeting, San Francisco, CA, December 2019.
- Davis, K.J., T. Lauvaux, **N. Miles**, S. Richardson, P. Shepson, J.C. Turnbull, R.M. Duren, K.R. Gurney, R.F. Keeling, J. Kim, C. E. Miller, K.R. Verhulst, R.F. Weiss, V. Yadav, S. Gourdji, A. Karion, I. Lopez-Coto, S. Ghosh, K.L. Mueller and J.R. Whetstone: Monitoring urban greenhouse gas emissions: Lessons from the NIST greenhouse gas measurements test-bed program. Talk B51E-12, presented at the Fall 2019 American Geophysical Union Meeting, San Francisco, CA, December 2019.
- Mitchell, L., J.C. Lin, R.C. Cohen, K.J. Davis, R.M. Duren, M. Falk, A. Guha, A. Karion, R.F. Keeling, J. Kim, **N. Miles**, S. Newman, X. Ren, A.L. Rice, S. Richardson, M.R. Sargent, J.C. Turnbull, K.R. Verhulst, R.F. Weiss, and S.C. Wofsy. Cross City Merged GHG Dataset, CO₂-Urban Synthesis and Analysis [CO₂-USA] Workshop, Boston, MA, October 2019.
- Davis, K.J., with contributions from many others, including: N. Balashov, Z. Barkley, T. Jones, T. Lauvaux, J. Lin, I. Lopez-Coto, **N.L. Miles**, M. Sargent, J. Turnbull, and K. Wu, GHG Flux Estimation at Urban Scale. CO₂USA Workshop, Boston, Massachusetts, October 2019.
- Wu, K., K.J. Davis, **N.L. Miles**, S. Richardson, T. Lauvaux, D. Sarmiento, K. Gurney, J. Turnbull, K. Keller, T. Gerken, N. Balashov, and J. Whetstone. Evaluating emissions inventory using atmospheric CO₂ flux measurements and source partitioning in a suburban environment. Oral presentation at the 2019 AmeriFlux Annual Meeting, Boulder, CO, September 2019.
- Davis, K.J., N. Balashov, T. Lauvaux, J. Lin, C. Sweeney, S. Wofsy, M. Sargent, **N. Miles**, K. Wu, I. Lopez Coto, K. Mueller, S. Gourdji, P. Shepson, R. Duren, and J. Turnbull. Inverse Modeling at the Urban Scale, CO₂-Urban Synthesis and Analysis [CO₂-USA] Workshop, Boston, MA, October 2019.
- Barkley, Z., K. Davis, T. Lauvaux, A. Deng, **N. Miles**, S. Richardson, C. Sweeney, and A. Fried: Methane emissions from unconventional natural gas production in the Marcellus Shale. Oral presentation at the 2019 Shale Network Workshop, State College, PA, May 2019.
- Lauvaux, T., K. Mueller, X. Ye, K. R. Gurney, M. Ramonet, P. Ciais, M. Nishihashi, Y. Terao, K. J. Davis, S. J. Richardson, **N. Miles**, R. Duren, T. Oda. Urban landscapes and atmospheric GHG inversions:

role of environmental and socio-economic drivers on evaluating mitigation policies. Oral presentation at the European Geophysical Union (EGU) General Assembly 2019, Geophysical Research Abstract, Vol. 21, EGU2019-18902-1, Vienna, Austria, April 2019.

- Mitchell, L., J.C. Lin, R.C. Cohen, K.J. Davis, R.M. Duren, M. Falk, A. Guha, A. Karion, R.F. Keeling, J. Kim, **N. Miles**, S. Newman, X. Ren, A.L. Rice, S. Richardson, M.R. Sargent, J.C. Turnbull, K.R. Verhulst, R.F. Weiss, and S.C. Wofsy. A new harmonized multi-city greenhouse gas data product and its applications. Invited oral presentation (A52G-01) presented at the 2018 Fall AGU Meeting, Washington, D.C., December 2018.
- Pal, S., K.J. Davis, T. Lauvaux, E.V. Browell, J.P. DiGangi, B.J. Gaudet, **N.L. Miles**, M.D. Obland, S. Richardson, and D. Stauffer. Synoptic and mesoscale variability in greenhouse gases across front in four seasons. Poster presentation (A43N-3316) at the 2018 Fall AGU Meeting, Washington, D.C., December 2018.
- Balashov, N.V., K.J. Davis, **N.L. Miles**, T. Lauvaux, S. Richardson, P.B. Shepson, and Z. Barkley. Airborne CH₄ emission estimates sensitivity to regional background at Indianapolis with assistance of WRF-Chem model. Poster presentation (A43R-3457) at the 2018 Fall AGU Meeting, Washington, D.C., December 2018.
- Davis, K.J., N. Balashov, Z. Barkley, T. Lauvaux, **N.L. Miles**, S.J. Richardson, D.P. Sarmiento, P.B. Shepson, J. Wang, and K. Wu. Progress toward accurate, precise, year-round quantification of urban greenhouse gas emissions via improved understanding and treatment of background conditions. Oral presentation at the 10th International Conference on Urban Climate/14th Symposium on the Urban Environment Meeting, New York City, August 2018.
- Barkley, Z., T. Lauvaux, **N.L. Miles**, S.J. Richardson, A. Deng, D. Martins, K.J. Davis, C. Sweeney, K. McKain, T. Murphy, R. Dickerson, X. Ren, J.P. DiGangi, and A. Fried. Long-term monitoring of methane emissions from natural gas production in the Marcellus shale. Oral presentation presented at the European Geophysical Union (EGU) General Assembly 2018, session AS3.17/BG1.28, Vienna, Austria, April 2018.
- Lauvaux, T., A. Deng, K.R. Gurney, B. Nathan, X. Ye, T. Oda, A. Karion, M. Hardesty, R.M. Harvey, S. Richardson, J.R. Whetstone, L. Huttyra, K.J. Davis, A. Brewer, B.J. Gaudet, J.C. Turnbull, C. Sweeney, P.B. Shepson, **N. Miles**, T. Bonin, K. Wu, and N.V. Balashov. Inter-annual variability and trend detection of urban CO₂, CH₄, and CO emissions. Oral presentation (A14G-07) presented at the 2017 Fall AGU Meeting, New Orleans, LA, December 2017.
- Meadows, B., K.J. Davis, J.D.W. Barrick, E. Bell, E.V. Browell, J.F. Campbell, J.P. DiGangi, G. Chen, J.T. Dobler, T.-F. Fan, S. Feng, A. Fried, S.A. Kooi, T. Lauvaux, B. Lin, M.J. McGill, **N. Miles**, A.R. Nehrir, M.D. Obland, C. O'Dell, S. Pal, R. Pauly, C. Sweeney, and M.Y. Yang. Overview of lidar contributions to the Atmospheric Carbon and Transport – America (ACT-America) program. Oral presentation (A21M-02), presented at the 2017 Fall AGU Meeting, New Orleans, LA, December 2017.
- Gaudet, B.J., K.J. Davis, J.P. DiGangi, S. Feng, K. Hoffman, A.R. Jacobson, T. Lauvaux, M. J. McGill, **N. Miles**, S. Pal, R. Pauly, and S. Richardson. The use of fair-weather cases from the ACT-America Summer 2016 field campaign to better constrain regional biogenic CO₂ surface fluxes. Poster (A43C-2464) presented at the 2017 Fall AGU Meeting, New Orleans, LA, December 2017.
- Andrews, A., A. Michalak, L. Hu, Y. Shiga, Y. Fang, J. Benmergui, M. Trudeau, K. Thoning, M. Mountain, V. Yadav, S. Miller, T. Nehrkorn, C. Sweeney, J. Miller, S. Basu, A. Jacobson, L. Bruhwiler, P. Tans, I. van der Velde, C. Alden, H. Chen, W. Peters, D. Worthy, K. Davis, S. Richardson, **N. Miles**, M. Fischer, S. Biraud, B. Stephens, E. Dlugokencky, J. Kofler, B. Miller, S. Montzka, S. Lehman, S. Wofsy, C. O'Dell, D. Wunch, C. Roehl and P. Wennberg. Top-down constraints on the North American carbon cycle from the first ten years of the North American Carbon Program. Poster presented at the 10th International Carbon Dioxide Conference (ICDC), Interlaken, Switzerland, September 2017.

- Davis, K., Lauvaux, T., Chen, H., Deng, A., Feng, S., Gaudet, B., Keller, K., Lease, Q., **Miles, N.**, Pal, S., Richardson, S., Samaddar, A., Stauffer, D., Wesloh, D., Zhang, F., O'Dell, C., Baker, D., Bell, E., Denning, S., Schuh, A., Boyer, A., Wei, Y., Lin, B., Aknan, A., Browell, E., Campbell, J., Carrion, W., Chen, G., Choi, Y., DiGangi, J., Fan, T., Halliday, H., Kooi, S., Nowak, J., Nehrir, A., Obland, M., Liu, Z., Meadows, B., Plant, J., Dobler, J., Blume, N., Erxleben, W., Lahrman, D., McGregor, D., Fried, A., Richter, D., Walega, J., Weibring, P. Berry, J., Michalak, A., McGill, M., Pauly, R., Pawson, S., Chatterjee, A., Ott, L., Xue, M., Moore, B., Yang, M., Kirby, S., Stith, E., Van Gilst, D., Sweeney, C., Baier, B., Bruhwiler, L., Jacobson, A., Miller, J., Petron, G., and Bowman, K. A sustained airborne campaign to improve inverse flux estimates of greenhouse gas sources and sinks: Results from the Atmospheric Carbon and Transport (ACT) – America mission. Poster presented at the 10th International Carbon Dioxide Conference (ICDC), Interlaken, Switzerland, September 2017.
- Turnbull, J., K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, K. Wu, A. Deng, D. Sarmiento, A. Brewer, M. Hardesty, C. Sweeney, K. McKain, M. Cambaliza, K. Gurney, R. Patarasuk, D. O'Keefe, J. Liang, P. Shepson, R. Harvey, A. Heimbeiger, A. Karion, K. Prasad, I. Lopez-Coto, and J. Whetstone. Synthesis of urban greenhouse gas emission estimates from the Indianapolis Flux Experiment (INFLUX). Talk presented at the 10th International Carbon Dioxide Conference (ICDC), Interlaken, Switzerland, September 2017.
- Balashov, N., K.J. Davis, **N. Miles**, T. Lauvaux, S. Richardson, B. Lamb, P. Shepson, R. Harvey, and Z. Barkley. Temporal variability in methane at Indianapolis with implications for the urban methane flux estimates. Talk presented at the 10th International Carbon Dioxide Conference (ICDC), Interlaken, Switzerland, September 2017.
- Barkley, Z.B., T. Lauvaux, K.J. Davis, A. Deng, **N. Miles**, S. Richardson, D.K. Martins, Y. Cao, C. Sweeney, K. McKain, S. Schwietzke, M.L. Smith, and E.A. Kort. Top-down Estimate of Methane Emissions from Natural Gas Production in Northeastern Pennsylvania Using Aircraft and Tower Observations, Poster presented at the 6th North American Carbon Program Principal Investigators Meeting, Bethesda, MD, March 2017.
- Balashov, N., K.J. Davis, **N. Miles**, T. Lauvaux, and S. Richardson. Temporal Variability in Methane Enhancements during 2012-2016 as Observed in the Indianapolis Flux Experiment, Poster presented at the 6th North American Carbon Program Principal Investigators Meeting, Bethesda, MD, March 2017.
- Wu, K., K.J. Davis, T. Lauvaux, J. Turnbull, **N. Miles**, S. Richardson, K.R. Gurney, R. Patarasuk, D.P. Sarmiento, and J. Wang. Disaggregating fossil fuel and biogenic CO₂ fluxes in an urban environment using micrometeorological and trace gas measurements, Poster presented at the 6th North American Carbon Program Principal Investigators Meeting, Bethesda, MD, March 2017.
- R.M. Harvey, K.J. Davis, K.R. Gurney, A. Heimburger, L. Hutyra, A. Karion, T. Lauvaux, **N. Miles**, S. Richardson, D.P. Sarmiento, P.B. Shepson, C. Sweeney, J. Turnbull, I. Vimont, J. Wang, K. Wu, and J. Whetstone. Summertime CO₂ Emission Rate Quantification for Urban Environments, Poster presented at the 6th North American Carbon Program Principal Investigators Meeting, Bethesda, MD, March 2017.
- Normile, C. P., K.J. Davis, A. Jacobson, **N.L. Miles**, S. J. Richardson, D. Baldocchi, and T. Lauvaux. Evaluating the CarbonTracker 2015 Posterior Suite Against Multiyear North American Observed Biogenic Fluxes, 2017 American Meteorological Society Annual Meeting, Seattle, WA, January 2017.
- Davis, K., T. Bonin, M. Cambaliza, A. Deng, R. M. Hardesty, A. Brewer, K. Gurney, R. Harvey, A. Heimburger, A. Karion, A. E. Kerlo, T. Lauvaux, I. Lopez-Coto, D. K. Martins, K. McKain, **N. L. Miles**, R. Patarasuk, K. Prasad, S. J. Richardson, O. Salmon, D. P. Sarmiento, P. B. Shepson, D. Stauffer, C. Sweeney, J. Turnbull, I. Vimont, J. R. Whetstone, J. Wang, and K. Wu. Progress Towards

High-Precision, High-Resolution Monitoring of Urban Greenhouse Gas Emissions: Results from INFLUX. 2017 American Meteorological Society Annual Meeting, Seattle, WA, January 2017.

- Turnbull, J., K. Davis, A.J. Deng, T. Lauvaux, **N. Miles**, S. Richardson, D. Sarmiento, K. Wu, A. Brewer, R.M. Hardest, K. McKain, C. Sweeney, K.G. Gurney, J. Liang, D. O'Keefe, R. Patarasuk, M.O. Cambaliza, R. Harvey, A. Hamburger, P. Shepson, A. Karion, I. Lopez-Coto, K. Prasad, J. Whetstone. Synthesis of urban greenhouse gas emission estimates from the Indianapolis Flux Experiment (INFLUX) (Invited). Oral presentation (A53M-01), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Hajny, K., K.J. Davis, J. Franklin, R. Harvey, T. Lavoie, **N. Miles**, S. Richardson, O. Salmon, D. Sarmiento, P. Shepson, B. Stirm, S. Wofsy. A collaborative study of source apportionment and total city emissions of CH₄ from Indianapolis, Poster (A21C-0063), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Harvey, R., A. Hamburger, A. Karion, T. Lauvaux, K. McKain, **N. Miles**, S. Richardson, C. Sweeney, P. Shepson, J. Turnbull, J. Whetstone. Seasonality of the fossil and biogenic components of CO₂ emissions during INFLUX. Poster (A51K-0241), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Nathan, B., T. Lauvaux, J. Turnbull, C. Sweeney, A. Karion, S. Richardson, **N. Miles**, K.R. Gurney, R. Patarasuk. Investigations on the Use of multi-species flask measurements for sector-specific fossil fuel CO₂ attribution to aid policymakers. Poster (A51K-0240), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Cao, Y., G. Cervone, Z. Barkley, T. Lauvaux, A.J. Deng, **N. Miles**, S. Richardson. Characterization of Methane Emission Sources Using Genetic Algorithms and Atmospheric Transport Modeling. Poster (A51K-0224), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Barkley, Z., T. Lauvaux, K. Davis, A.J. Deng, **N. Miles**, S. Richardson, D. Martins, Y. Cao, C. Sweeney, K. McKain, S. Schwietzke, M. Smith, E. Kort. Top-down Estimate of Methane Emissions from Natural Gas Production in Northeastern Pennsylvania Using Aircraft and Tower Observations. Oral presentation (A54G-03), presented at the 2016 Fall AGU Meeting, San Francisco, CA, December 2016.
- Turnbull, J.C., C. Sweeney, K. McKain, T. Newberger, I. Vimont, S. Lehman, K.J. Davis, T. Lauvaux, **N.L. Miles**, S.J. Richardson, B. Nathan, K. Wu, Shepson, A. Hamburger, K.R. Gurney, R. Patarasuk, A. Karion, and J. Whetstone. High-accuracy, high-precision, high-resolution, source-specific monitoring of urban greenhouse gas emissions? Results to date from INFLUX. Talk presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2016.
- Davis, K., A. Brewer, M. Cambaliza, A.J. Deng, R. Hardesty, K. Gurney, A. Heimbürger, A. Karion, T. Lauvaux, I. Lopez-Coto, K. McKain, **N. Miles**, R. Patarasuk, K. Prasad, I. Razlivanov, S. Richardson, D. Sarmiento, P. Shepson, C. Sweeney, J. Turnbull, J. Whetstone and K. Wu. High-accuracy, high-precision, high-resolution, continuous monitoring of urban greenhouse gas emissions: Results to date from INFLUX. Presented at the 2015 Fall AGU Meeting, San Francisco, CA, December 2015.
- Gurney, K., R. Duren, L. Huttyra, J. Ehleringer, R. Patarasuk, Y. Song, J. Huang, K. Davis, E. Kort, P. Shepson, J. Turnbull, T. Lauvaux, P. Rao, A. Eldering, C. Miller, S. Wofsy, K. McKain, D. Mendoza, J. Lin, C. Sweeney, **N. Miles**, S. Richardson and M. Cambaliza. Urbanization and the Carbon Cycle: Synthesis of Ongoing Research. Presented at the 2015 Fall AGU Meeting, San Francisco, CA, December 2015.
- Hillyard, P., T. Lauvaux, J. Podolski, L. Iraci, **N. Miles**, S. Richardson, K. Davis, C. Roehl, D. Winch, P. Wennberg, J.-F. Blavier, N. Allen, and E. Barrow. Detecting CO₂ and CH₄ urban emissions using

column-integrated and in-situ tower atmospheric dry air mole fractions, and WRF modeling. Presented at the 2015 Fall AGU Meeting, San Francisco, CA, December 2015.

- Nathan, B., T. Lauvaux, J.C. Turnbull, C. Sweeney, A. Karion, S. Richardson and **N.L. Miles**. Investigations on the effective use of a neural network classifier for source attribution in the Indianapolis urban domain. Presented at the 2015 Fall AGU Meeting, San Francisco, CA, December 2015.
- Davis, K.J., and the INFLUX science team. Inverse estimates of greenhouse gas sources and sinks using regional measurement networks. BIPM Workshop on Global to Urban Scale Carbon Measurements, BIPM, Sevres, France, June 2015.
- Barkley, Z., K.J. Davis, T. Lauvaux, **N.L. Miles**, S.J. Richardson, Y. Cao, Wheeler, Peisch, and Ryerson. Fugitive emissions from unconventional wells in Northeastern Pennsylvania: Tower network design. Poster presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2015.
- Wu, K., K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, A.J. Deng, B. Gaudet, D. Sarmiento, K. Gurney, and R. Patarasuk. Sensitivity of Flux Accuracy to Setup of Fossil Fuel and Biogenic CO₂ Inverse System in an Urban Environment. Poster presented at the NOAA GMD Annual Meeting, Boulder, CO, May 2015.
- Rella, C., C. Arata, N. Saad, G. Leggett, **N. Miles**, S. Richardson, and K. Davis. Improved CRDS $\delta^{13}\text{C}$ Stability Through New Calibration Application for CO₂ and CH₄. EGU General Assembly 2015, id.8039, Vienna, Austria, 12-17 April 2015.
- Martins, D.K., T. Lauvaux, **N.L. Miles**, S.J. Richardson, Z. Barkley, A. Deng, B. Gaudet, K.J. Davis, Y. Cao, and A. Taylor. Continuous, regional methane emissions estimates in northern Pennsylvania gas fields using atmospheric inversions. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Sarmiento, D., K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, and K. Wu. Improvement of land surface - atmosphere interactions in a WRF/Urban modeling system for Indianapolis, IN as part of the INFLUX project. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Lauvaux, T., A.J. Deng, K. Davis, K. Wu, S. Richardson, **N. Miles**, D. Sarmiento, K. Gurney, and R. Patarasuk. Urban inversion of greenhouse gases at high resolution during the dormant season over Indianapolis. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Wu, K., K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, A.J. Deng, B. Gaudet, and D. Sarmiento. Sensitivity of flux accuracy to setup of fossil fuel and biogenic CO₂ inverse system in an urban environment. Poster presented at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Davis, K., A.J. Deng, B. Gaudet, T. Lauvaux, D. Martins, **N. Miles**, S. Richardson, D. Sarmiento, K. Wu, M.O. Cambaliza, A. Heimbürger, P. Shepson, K. Gurney, R. Patarasuk, I. Razlivanov, A. Brewer, R.M. Hardesty, A. Karion, C. Sweeney, J. Turnbull, I. Lopez-Coto, K. Prasad, and J. Whetstone. Progress towards high-resolution, high-accuracy urban flux monitoring: Results from Indianapolis Flux Experiment (INFLUX), Plenary presentation at the 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C., January 2015.
- Sarmiento, D., K. Davis, T. Lauvaux, **N. Miles**, and S. Richardson. Improvement of land surface-atmosphere interaction in a WRF/urban modeling system for Indianapolis, IN. Abstract B13I-0311, presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.
- Hardesty, R.M., A. Brewer, P. Shepson, M.O. Cambaliza, O. Salmon, A. Heimbürger, K. Davis, T. Lauvaux, L. McGowan, **N. Miles**, S. Richardson, D. Sarmiento, A. Karion, C. Sweeney, L. Iraci, P. Hillyard, J. Podolske, K. Gurney, I. Razlivanov, Song, J. Turnbull, J. Whetstone, A. Possolo, and K.

Prasad. One year of Doppler lidar observations characterizing boundary layer wind, turbulence, and aerosol structure during the Indianapolis Flux Experiment. Abstract A51O-03, presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.

- Turnbull, J., A. Karion, C. Sweeney, T. Newberger, Lehman, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, P. Shepson, M.O. Cambaliza, K. Gurney, R. Patarasuk, and J. Whetstone. Partitioning of urban CO₂ff emissions by source sector: Results from the INFLUX project. Abstract B24D-02, presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.
- Lopez-Coto, I., K. Prasad, H. Hu, J. Whetstone, **N. Miles**, S. Richardson, T. Lauvaux, K. Davis, J. Turnbull, A. Karion, C. Sweeney, A. Brewer, R.M. Hardesty, M.O. Cambaliza, P. Shepson, R. Patarasuk, and K. Gurney. CO₂ biogenic vs anthropogenic sectoral contribution for INFLUX. Abstract A53L-3378, presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.
- Shepson, P., M.O. Cambaliza, O. Salmon, A. Heimburger, K. Davis, T. Lauvaux, L. McGowan, **N. Miles**, S. Richardson, D. Sarmiento, R.M. Hardesty, A. Karion, C. Sweeney, L. Iraci, P. Hillyard, J. Podolske, K. Gurney, R. Patarasuk, I. Razlivanov, Song, O'Keefe, J. Turnbull, I. Vimont, J. Whetstone, A. Possolo, K. Prasad, I. Lopez-Coto, and the INFLUX Team. Progress and Developments in the Indianapolis Flux Experiment (INFLUX). Abstract A52D-01, presented at the 2014 Fall AGU Meeting, San Francisco, CA, December 2014.
- Turnbull, J., A. Karion, C. Sweeney, R.M. Hardesty, Lehman, T. Newberger, I. Vimont, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, P. Shepson, M.O. Cambaliza, K. Gurney, L. Iraci, and J. Whetstone. The Indianapolis Flux Project (INFLUX): Development and assessment of methods for urban greenhouse gas emission monitoring (invited keynote), Radiocarbon in the Environment conference, Belfast, July 2014.
- Turnbull, J., Zondervan, C. Sweeney, A. Karion, T. Newberger, P. Tans, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, M.O. Cambaliza, and P. Shepson. Towards quantification of fossil fuel CO₂ and trace gas emissions from an urban area: Results from the INFLUX experiment. Presented at the 16th Global Emissions Initiative (GEIA) Conference, Boulder, CO, 10-11 June 2014.
- Davis, K., A.J. Deng, T. Lauvaux, **N. Miles**, S. Richardson, D. Sarmiento, K. Wu, M.O. Cambaliza, P. Shepson, K. Gurney, I. Razlivanov, R.M. Hardesty, A. Karion, C. Sweeney, J. Turnbull, I. Lopez, K. Prasad and J. Whetstone. Presented at the 16th Global Emissions Initiative (GEIA) Conference, Boulder, CO, 10-11 June 2014.
- Turnbull, J., A. Karion, C. Sweeney, R.M. Hardesty, Lehman, T. Newberger, I. Vimont, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, P. Shepson, M.O. Cambaliza, K. Gurney, L. Iraci, and J. Whetstone. Partitioning of urban CO₂ff emissions by sectors: Results from the INFUX project. Presented at the 42nd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO, 20 May – 21 May 2014.
- Shepson, P., et al. Improvements to the Aircraft Mass Balance Method for Determination of Urban-Scale Greenhouse Gas Fluxes. Presented at the European Geosciences Union General Assembly, Vienna, Austria, 27 April – 02 May 2014.
- Lauvaux, T., A.J. Deng, B. Gaudet, **N.L. Miles**, S.J. Richardson, J. Ciccarelli, and K.J. Davis. Regional methane emissions estimates in northern Pennsylvania gas fields using a mesoscale atmospheric inversion system. Presented at the American Meteorological Society 16th Conference on Atmospheric Chemistry, Atlanta, GA, 2-6 February 2014.
- Sarmiento, D., **N. Miles**, S. Richardson, T. Lauvaux, K. Davis, and P. Shepson. INFLUX: Comparisons of modeled and observed surface energy dynamics over varying urban landscapes in Indianapolis, IN. Presented at the 11th Symposium on the Urban Environment during the 94th Annual Meeting of the American Meteorological Society, Atlanta, GA, 2-6 February 2014.

- Davis, K., M.O. Cambaliza, K. Gurney, R.M. Hardesty, A. Karion, T. Lauvaux, **N. Miles**, K. Prasad, I. Razlivanov, S. Richardson, D. Sarmiento, P. Shepson, C. Sweeney, J. Turnbull, and J. Whetstone. Measuring CO₂ and CH₄ emissions from Indianapolis: A test bed for urban greenhouse gas emissions monitoring. Poster presented at the National Council for Science and the Environment's 14th National Conference and Global Forum on Science, Policy and the Environment, Washington, D.C., 28-30 January 2014,
- Cambaliza, M.O., P. Shepson, Caulton B. Stirm, Miller, A. Hendricks, B. Moser, T. Lavoie, O. Salmon, J. Turnbull, A. Karion, C. Sweeney, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, E. Crosson, J. Whetstone, Prasad, and K. Gurney. Quantification of the methane emission flux from the city of Indianapolis, IN: Identification and contribution of sources. Poster A53E-0225, presented at the 2013 Fall AGU Meeting, San Francisco, CA, December 2013.
- Hardesty, R.M., A. Brewer, Sandberg, Weickmann, C. Sweeney, A. Karion, K. Davis, P. Shepson, T. Lauvaux, M.O. Cambaliza, **N. Miles**, and J. Whetstone. Characterizing Boundary Layer Properties for Estimating Urban Greenhouse Gas Emissions. Poster A53E-0226 presented at the 2013 Fall AGU Meeting, San Francisco, CA, December 2013.
- Davis K., et al. Measuring CO₂ and CH₄ emissions from Indianapolis: A test bed for urban greenhouse gas emissions monitoring. Presented at the Carbon Management Technology Conference (CMTC 2013), Alexandria, VA, 21-23 October 2013.
- Whetstone, J., K. Davis, T. Lauvaux, L. McGowan, **N. Miles**, S. Richardson, D. Sarmiento, M.O. Cambaliza, P. Shepson, A. Karion, R.M. Hardesty, C. Sweeney, L. Iraci, K. Gurney, and J. Turnbull. Measuring CO₂ and CH₄ emissions from Indianapolis: A test bed for urban greenhouse gas emissions monitoring. Poster presented at the American Geophysical Union Science Policy Conference, Washington, DC, 24-26 June 2013.
- Turnbull, J., M.O. Cambaliza, C. Sweeney, A. Karion, T. Newberger, P. Tans, Lehman, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, P. Shepson, K. Gurney, Song, and I. Razlivanov. Quantification of urban fossil fuel CO₂ emissions from the Indianapolis Flux Project (INFLUX). Presented at the 9th International Carbon Dioxide Conference, Beijing, China, 3-7 June 2013.
- Shepson, P., W. Callahan, M.O. Cambaliza, K. Davis, M. Hardesty, L. Iraci, K. Gurney, A. Karion, T. Lauvaux, L. McGowan, **N. Miles**, Moser, T. Newberger, A. Possolo, I. Razlivanov, S. Richardson, Samarov, D. Sarmiento, Stirm, C. Sweeney, J. Turnbull, and J. Whetstone. Measurements of urban area-wide CO₂ and CH₄ fluxes as part of the Indianapolis Flux Project (INFLUX). Presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, 4-7 February 2013.
- Turnbull, J., M.O. Cambaliza, C. Sweeney, A. Karion, T. Newberger, P. Tans, Lehman, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, P. Shepson, K. Gurney, Song, and I. Razlivanov. Quantification of fossil fuel CO₂ emissions from the Indianapolis Flux Project (INFLUX). Poster presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, 4-7 February 2013.
- Cambaliza, M.O., P. Shepson, Caulton, Stirm, S. Miller, Moser, J. Turnbull, A. Karion, C. Sweeney, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, E. Crosson, and J. Whetstone. Quantification of methane emission sources from the city of Indianapolis using the aircraft mass-balance method. Poster presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, 4-7 February 2013.
- Gurney, K., I. Razlivanov, Zhou, J. Turnbull, C. Sweeney, Guenther, A. Karion, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, P. Shepson, M.O. Cambaliza, Lehman, and P. Tans. Hestia: Urban scale high resolution quantification of fossil fuel CO₂ emissions. Poster presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, 4-7 February 2013.

- Lauvaux, T., K. Davis, S. Richardson, N. **Miles**, and L. Diaz: Transport error impact on the use of remote sensing measurements in regional inversions of carbon sources and sinks. Poster presented at the 4th NACP All-Investigators Meeting, Albuquerque, NM, 4-7 February 2013.
- Sarmiento, D., S. Belmercheri, T. Lauvaux, T. Sowers, S. Bryant, N. **Miles**, S. Richardson, J. Aikins, C. Sweeney, G. Petron, and K. Davis. Continuous monitoring of CH₄ emissions from Marcellus Shale gas extraction in Pennsylvania using top-down methodology. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, December 2012.
- Shepson, P., B. Callahan, M.O. Cambaliza, K. Davis, R.M. Hardesty, L. Iraci, K. Gurney, A. Karion, T. Lauvaux, McGowan, N. **Miles**, B. Moser, Possolo, I. Razlivanov, S. Richardson, D. Sarmiento, B. Stirm, C. Sweeney, J. Turnbull, and J. Whetstone. Measurements of Urban Area-Wide CO₂ and CH₄ Fluxes as part of the Indianapolis Flux Experiment (INFLUX). 2012 Fall AGU Meeting, San Francisco, CA, December, 2012.
- Turnbull, C. Sweeney, A. Karion, Newbuerger, Guenther, P. Tans, N. **Miles**, S. Richardson, T. Lauvaux, K. Davis, P. Shepson, K. Gurney, Song, I. Razlivanov, and Lehman. Quantification of fossil fuel CO₂ emissions at the urban scale: Results from the Indianapolis Flux Project (INFLUX). 2012 Fall AGU Meeting, San Francisco, CA, December 2012.
- Davis, T. Lauvaux, McGowan, Cambaliza, R.M. Hardesty, L. Iraci, K. Gurney, P. Hillyard, A. Karion, N. **Miles**, J. Podolske, I. Razlivanov, S. Richardson, D. Sarmiento, P. Shepson, Song, C. Sweeney, J. Turnbull, and J. Whetstone. Towards validation of urban GHG emissions using a very high resolution atmospheric inversion in the Indianapolis Flux Experiment. 2012 Fall AGU Meeting, San Francisco, CA, December 2012.
- Lauvaux, T., K. Davis, S. Richardson, N. **Miles**, and L. Diaz. On the use of remote sensing measurements in regional inversions of carbon sources and sinks. 2012 Fall AGU Meeting, San Francisco, CA, December 2012.
- Lauvaux, T., S. Richardson, K. Davis, and N.L. **Miles**. From evaluation of emissions to verification within an urban atmospheric inversion of GHG's at very high resolution in the Indianapolis Flux Experiment. 2012 Fall AGU Meeting, San Francisco, CA, December 2012.
- Shepson, P., J. Whetstone, C. Sweeney, K. Davis, M.O. Cambaliza, Caulton, B. Stirm, S. Richardson, N. **Miles**, A. Possolo, Samarov, J. Turnbull, A. Karion, K. Gurney, T. Lauvaux. Studies of the uncertainties in determining the urban area-wide fluxes of greenhouse gases. Presented at the 12th IGAC Open Science Conference, Beijing, China, September 17-21, 2012.
- Deng, A.J., T. Lauvaux, K. Davis, N. **Miles**, S. Richardson, D. Stauffer. A WRF-Chem Realtime Modeling System for Monitoring CO₂ Emissions. Presented at the 13th NCAR WRF Users' Workshop, Boulder, CO, June 25-29, 2012.
- Jacobson, G., K. Davis, S. Richardson, N. **Miles**, T. Lauvaux, A.J. Deng, G.P. Calonder, Ruesch, Lehning, P. DeCola, and C. Rella. Urban Greenhouse Gas Emissions Monitoring in Davos, Switzerland, Before, During, and After the World Economic Forum Annual Meeting 2012. Presented at the NOAA GMD Annual Conference, Boulder, CO, May 15-17, 2012.
- Lauvaux, T., David, We, Bocquet, N. **Miles**, S. Richardson, A. Schuh, L. Diaz, T. Hilton. Network Design for Regional CO₂ Flux Inversions: Optimal Deployment Strategy Results from the Mid Continent Intensive Experiment. Presented at the NOAA GMD Annual Conference, Boulder, CO, May 15-17, 2012.
- Davis, K., et al. Greenhouse gas fluxes derived from regional measurement networks and atmospheric inversions: Results from the MCI and INFLUX experiments. Megacities Workshop, Pasadena, CA, May 2012.

- Whetstone, J., P. Shepson, K. Davis, C. Sweeney, K. Gurney, **N. Miles**, S. Richardson, T. Lauvaux, I. Razlivanov, Zhou, Song, J. Turnbull, A. Karion, Cambaliza, Callahan, Novakovskaia, Crosson, Rella, and Possolo. Urban-Dome GHG Monitoring: Challenges and Perspectives from the INFLUX Project. EGU General Assembly 2012, Vienna, Austria, April 2012.
- Lauvaux, T., L. McGowan, K. Davis, K. Gurney, I. Razlivanov, S. Richardson, **N. Miles**, D. Sarmiento, Schuh, P. Shepson, M.O. Cambaliza, J. Turnbull, C. Sweeney, Hong, and P. Rayner. Emission Verification from National to Local Levels Using Top-down Approaches: Sampling Strategy and modeling Performances. Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Diaz, L., T. Lauvaux, K. Davis, **N. Miles**, S. Richardson, A. Andrews, A. Jacobson, C. Sweeney, S. Ogle, and A. Schuh. Progress Towards Well-Constrained Regional Inversions: Results from the NACP Midcontinent Intensive Regional Study. Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Gurney, K., I. Razlivanov, Zhou, Song, J. Turnbull, C. Sweeney, Guenther, A. Karion, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, P. Shepson, M.O. Cambaliza, Lehman, and P. Tans. Quantification of Space/Time Explicit Fossil Fuel Emissions in Urban Domes. Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Turnbull, J., C. Sweeney, Guenther, A. Karion, **N. Miles**, K. Davis, S. Richardson, T. Lauvaux, P. Shepson, M.O. Cambaliza, K. Gurney, Song, I. Razlivanov, Lehman, and P. Tans. Quantification of Anthropogenic Emissions from an Urban Region: Early Results from the Indianapolis Flux Project (INFLUX). Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Caulton, M.O. Cambaliza, P. Shepson, B. Stirn, J. Turnbull, C. Sweeney, K. Gurney, K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, J. Whetstone, A. Possolo, and Samarov. Assessment of Accuracy of Aircraft-based Measurement of Urban Greenhouse Gas Emissions: Initial Results from the Indianapolis Flux Experiment (INFLUX). Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Razlivanov, I., K. Gurney, Zhou, J. Turnbull, C. Sweeney, Guenther, A. Karion, K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, P. Shepson, M.O. Cambaliza, Lehman, and P. Tans. Building-specific Quantification of Fossil Fuel CO₂ Emissions in an Urban Domain: The Case of Indianapolis, US. Presented at the 2011 Fall AGU Meeting, San Francisco, CA, December 5-9, 2011.
- Cambaliza, M.O., P. Shepson, B. Stirn, A. Karion, C. Sweeney, J. Turnbull, K. Davis, T. Lauvaux, S. Richardson, **N. Miles**, and Svetanoff. Quantification of emissions from methane sources in Indianapolis using an aircraft-based platform. Poster presented at the American Chemical Society Fall Meeting, Denver, CO, August 2011.
- Shepson, P., M.O. Cambaliza, K. Davis, K. Gurney, T. Lauvaux, **N. Miles**, S. Richardson, C. Sweeney, and J. Turnbull. The Indianapolis Flux Experiment (INFLUX): Experiment Design and New Results Regarding Measurements of Urban-Area CO₂ and CH₄ Emission Fluxes. Poster presented at the American Chemical Society Fall Meeting, Denver, CO, August 2011.
- Davis, K., A. Andrews, Bandaru, F. Breidt, Cooley, S. Denning, L. Diaz, K. Gurney, Gurung, L. Heath, Izaurrealde, T. Lauvaux, Li, Liu, **N. Miles**, S. Ogle, S. Richardson, A. Schuh, J. Smith, C. Sweeney, and T. West. Convergence and synthesis of regional top-down and bottom-up estimates of CO₂ flux estimates: Results from the North American Carbon Program Midcontinent Intensive (MCI) regional study. Talk presented at the 2nd International Workshop on the Regional Carbon Cycle Assessment on Land and Oceans, Shepherdstown, WV, May 2011.
- Davis, K., T. Hilton, T. Lauvaux, M. Butler, L. Diaz, K. Keller, **N. Miles**, S. Richardson, A. Andrews, and N. Urban. Impacts of spatial and temporal correlations in regional atmospheric inverse estimates

of greenhouse gas fluxes. SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS11), Long Beach, CA, March 2011.

- Diaz, L., K. Davis, T. Lauvaux, **N. Miles**, S. Richardson, A. Andrews, and A. Jacobson. Model-data comparison of the Mid-Continental Intensive field campaign Atmospheric CO₂ mixing ratios. Poster presented at the 2011 Ameriflux Science Meeting and 3rd NACP All-Investigators Meeting, New Orleans, LA, February 2011.
- Sweeney, C., P. Shepson, Fischer, A. Karion, Cambaliza, J. Turnbull, K. Davis, K. Gurney, Faloona, Miller, Lehman, Miller, **N. Miles**, S. Richardson, and Lauvaux. Capturing the urban plume using aircraft observations. Plenary talk presented at the 2011 Ameriflux Science Meeting & 3rd NACP All-Investigators Meeting, New Orleans, LA, February 2011.
- Lauvaux, T., A. Schuh, A. Andrews, A. Jacobson, M. Uliasz, T. West, S. Richardson, **N. Miles**, D. Cooley, K. Gurney, L. Diaz, and K. Davis. Network design for high-resolution inversions: How many towers are needed to constrain a regional carbon balance? Poster presented at the 2011 Ameriflux Science Meeting & 3rd NACP All-Investigators Meeting, New Orleans, LA, February 2011.
- Schuh, A., T. Lauvaux, Ogle, K. Davis, S. Denning, D. Cooley, F. Breidt, **N. Miles**, S. Richardson, L. Diaz, M. Uliasz, A. Jacobson, K. Mueller, Gourdj, A. Andrews, and T. West. Contrasting atmospheric CO₂ inversion results at a regional scale over the highly-inventoried area of the Mid-Continental Intensive. Plenary talk presented at the 2011 Ameriflux Science Meeting and 3rd NACP All-Investigators Meeting, New Orleans, LA, February 2011.
- Cambaliza, M.O., P. Shepson, K. Davis, K. Gurney, T. Lauvaux, **N. Miles**, S. Richardson, C. Sweeney, J. Turnbull, A. Karion, and K. Mays. Investigation of methane emission sources from Indianapolis using an aircraft-based platform. Abstract A13F-0288 Poster presented at 2010 Fall Meeting, AGU, San Francisco, CA, December 2010.
- Davis, K., E. Browell, M. Butler, A. Denning, L. Diaz, F. Gibert, S. Ismail, G. Koch, T. Lauvaux, **N. Miles**, P. Rayner, S. Richardson, and C. Sweeney. Applications of active remote sensing of CO₂ to atmospheric studies of regional greenhouse gas sources and sinks. Abstract A22D-01 presented at 2010 Fall Meeting, AGU, San Francisco, CA, December 2010.
- Schuh, A., S. Ogle, K. Davis, A. Denning, T. Lauvaux, **N. Miles**, S. Richardson, A. Jacobson, A. Andrews, M. Uliasz, L. Diaz, T. West, and D. Cooley. Top-down bottom-up comparisons of the Mid-Continental Intensive (MCI) region. Abstract B51L-05 presented at 2010 Fall Meeting, AGU, San Francisco, CA, December 2010.
- Shepson, P., M.O. Cambaliza, K. Davis, K. Gurney, T. Lauvaux, **N. Miles**, S. Richardson, C. Sweeney, and J. Turnbull. The INFLUX Project: Indianapolis as a Case Study for the Accurate and High Resolution Determination of CO₂ and CH₄ Emission fluxes from an Urban Center. Abstract A13F-0279 Poster presented at 2010 Fall Meeting, AGU, San Francisco, CA, December 2010.
- Davis, K., A. Andrews, Cambaliza, S. Denning, K. Gurney, T. Lauvaux, **N. Miles**, Ogle, Possolo, S. Richardson, Schuh, P. Shepson, C. Sweeney, J. Turnbull, T. West, and J. Whetstone. Greenhouse gas emissions derived from regional measurement networks and atmospheric inversions: Results from the MCI and INFLUX experiments. Abstract GC41G-07 presented at 2010 Fall Meeting, AGU, San Francisco, CA, December 2010.
- Lauvaux, T., L. Diaz, **N. Miles**, S. Richardson, A. Schuh, A. Jacobson, A. Andrews, K. Davis, and C. Sweeney. Regional carbon budget with a high density CO₂ concentration tower network: Mesoscale inversion of CO₂ fluxes at high resolution. Invited talk presented at the 2nd Hydrology Earth System Science to Society Joint meeting, Tokyo, Japan, June 2010.
- Diaz, L., K. Davis, **N. Miles**, S. Richardson, T. Lauvaux, Schuh, S. Denning, A. Andrews, and Jacobson. Mid-Continental Intensive Field Campaign Atmospheric CO₂ Observations Compared to

Forward Models. Poster presented at the Fall 2009 AGU Meeting, San Francisco, CA, December 2009, EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract B51E-0338.

- Davis, K., M. Butler, L. Diaz, T. Hilton, K. Keller, T. Lauvaux, **N. Miles**, B. Raczka, Tonkonojenkov, N. Urban, and Xiao, Model-data fusion at scales from site to globe: Uncertainty assessment, network design, and multiple data constraints. Invited talk presented at the Fall 2009 AGU Meeting, EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract B44A-01, San Francisco, CA, December 2009.
- Schuh, A., S. Denning, S. Ogle, K. Corbin, M. Uliasz, K. Davis, T. Lauvaux, **N. Miles**, A. Andrews, G. Petron, and D. Huntzinger, Invited talk presented at the Fall 2009 AGU Meeting, EOS Trans. AGU, 90(52), Fall Meet. Suppl., Abstract B53F-03, San Francisco, CA, December 2009.
- Corbin, K.D., A.S. Denning, E.Y. Lokupitiya, A.E. Schuh, **N.L. Miles**, K.J. Davis, S. Richardson, I.T. Baker, R.M. Law, E.A. Kowalczyk, and Y.-P. Wang. Assessing the impact of crops on CO₂ fluxes and concentrations. Presented at the 8th International Carbon Dioxide Conference, Jena, Germany, September 2009.
- Ogle, S., D. Cooley, A. Schuh, T. West, K. Davis, **N. Miles**, S. Richardson, F.J. Breidt, A. Andrews, L. Heath, K. Gurney, and A.S. Denning. Resolving CO₂ flux estimates from atmospheric inversions and inventories in the mid-continent region. Presented by A. Schuh at the 8th International Carbon Dioxide Conference, Jena, Germany, September 2009.
- Van Pelt, A., E. Crosson, **N. Miles**, S. Richardson, K. Davis, C. Thomas, and B. Law. Recent developments in instrumentation for greenhouse gases and related tracer measurements. Presented at the 15th WMO/IAEA Meeting on Experts on Carbon Dioxide, Other Greenhouse Gases, and Related Tracer Measurement Techniques, Jena, Germany, September 2009.
- Crosson, E., K.D. Corbin, K.J. Davis, A.S. Denning, E.Y. Lokupitiya, **N.L. Miles**, and S.J. Richardson. Small-scale temporal and spatial variability in regional-scale CO₂ mixing ratio measurements. Eos Trans. AGU, 90(22), Jt. Assem. Suppl., Abstract B74A-04, Toronto, Canada, May 2009.
- Schuh, A., A.S. Denning, M. Uliasz, **N. Miles**, K.J. Davis, and S.J. Richardson. Regional-scale atmospheric measurements of CO₂ sources and sinks. Invited talk, Air and Waste Management Association First International Greenhouse Gas Measurement Symposium, San Francisco, CA, March 2009.
- Denning, A. S., A. Andrews, M. Butler, K. Corbin, K. Davis, T. Hilton, A. Jacobson, A. Michalak, **N. Miles**, P. Rayner, S. Richardson, A. Schuh, T. Lauvaux, and S. Wofsy. The North American carbon cycle as seen from the atmospheric perspective: Recent progress from the NACP. Invited talk presented at the 2nd North American Carbon Program (NACP) All-Investigators Meeting, San Diego, CA, February 2009.
- Denning, A.S., K. Corbin, I. Baker, E. Lokupitiya, E. McGrath-Spangler, Stockli, A. Schuh, K. Gurney, N. Parazoo, Zupanski, M. Uliasz, **N. Miles**, K. Davis, and S. Richardson. The North American carbon cycle as seen in models and observations. AGU Fall Meeting, Abstract B54A-01, San Francisco, CA, December 2008.
- Corbin, K., A.S. Denning, E. Lokupitiya, K. Davis, **N. Miles**, S. Richardson, I. Baker, and Paustian. Effects of Agricultural Production on Regional Variations of Atmospheric CO₂ Concentrations. AGU Fall Meeting, Abstract B51A-0364, San Francisco, CA, December 2008.
- Davis, K., M. Butler, T. Hilton, **N. Miles**, S. Richardson, I. Baker, S. Denning, E. Lokupitiya, K. Paustian, K. Schaefer, A. Schuh and E. Crosson. Progress towards synthesis of CO₂ flux and mixing ratio measurements to determine the terrestrial carbon balance at regional and continental scales. Invited talk given at the AmeriFlux principal investigators' annual meeting, Boulder, CO, October 2008.

- Uliasz, M., A.S. Denning, L. Lu, K. Corbin, D. Zupanski, **N. Miles**, S. Richardson, and K. Davis. Applications of Lagrangian Particle Transport Modeling in the Top-Down Regional CO₂ Studies. Poster presented at the AGU Fall Meeting, San Francisco, CA, December 2007.
- Davis, K., T. Hilton, M. Butler, B. Raczka, K. Cherrey, K. Keller, N. Urban, **N. Miles**, S. Richardson, A.S. Denning, N. Parazoo, A. Schuh, M. Uliasz, D. Zupanski, P. Bolstad, B. Cook, Anderson, Saliendra, D. Ricciuto, and Heinsch. Towards regional flux estimation synthesizing CO₂ flux and mixing ratio data. Poster presented at the Ameriflux meeting, Boulder, CO, October 2007.
- Butler, M., K. Davis, T. Hilton, K. Keller, **N. Miles**, S. Richardson, A. S. Denning, N. Parazoo, A. Schuh, M. Uliasz, D. Zupanski, and D. Ricciuto. Data fusion to determine North American sources and sinks of carbon dioxide at high spatial and temporal resolution from 2004 to 2008. Poster presented at the NOAA Global Carbon Cycle Program Principal Investigators Meeting, Silver Spring, MD, September 2007.
- Uliasz, M., A.S. Denning, K. Corbin, **N. Miles**, S. Richardson, and K. Davis. Estimation of regional CO₂ fluxes in northern Wisconsin using the ring of towers concentration measurements. Abstract submitted to the American Geophysical Union Fall 2006 Meeting, San Francisco CA, 2006.
- Davis, K., A. Andrews, J. Berry, P. Bolstad, Chen, B. Cook, A. S. Denning, A. Desai, Helliker, **N. Miles**, Noormets, D. Ricciuto, S Richardson, M. Uliasz, and W. Wang. Regional ecosystem-atmosphere carbon exchange observed simultaneously via atmospheric inversions and flux tower upscaling. Preprints, Seventh International Carbon Dioxide Conference, Boulder, CO, 2005.
- Uliasz, M., A.S. Denning, A. Schuh, K. Davis, S. Richardson, and **N. Miles**. Estimation of regional sources and sinks of CO₂ using mixing ratio data from the Ring of Towers in northern Wisconsin. Presented at the Seventh WMO International Carbon Dioxide Conference, Boulder, CO, 2005.
- Uliasz, M., A.S. Denning, K.J. Davis, S.J. Richardson, and **N. Miles**. Estimations of regional CO₂ fluxes: Development of a modeling framework designed for the ring of towers. Abstracts, American Geophysical Union Fall Meeting, San Francisco, CA, 2004.
- Dong, X., E.E. Clothiaux, **N.L. Miles**, J. Verlinde, T.P. Ackerman, P. Minnis, and B.A. Albrecht. Validation of cloud microphysical retrievals from surface-and-satellite-based measurements obtained during the fall of 96 Penn State aircraft experiment, Proceedings, Eighth Annual ARM Science Team Meeting, Ed. by N. Burleigh and D. Carrothers, U.S. Department of Energy, Richland, WA, 1998.

CONFERENCES AND WORKSHOPS

- 2022:** 21st WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), Wageningen, The Netherlands
- 2022:** Integrated Carbon Observation System Science Conference, Utrecht, The Netherlands
- 2019:** Permian Campaign Workshop, Austin, TX
- 2019:** 20th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), Jeju, Republic of Korea
- 2018:** CO₂-USA Urban Synthesis and Analysis Workshop, Salt Lake City, UT
- 2017:** 19th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), Dubendorf, Switzerland
- 2017:** 45th NOAA ESRL Global Monitoring Annual Conference, Boulder, CO
- 2017:** 5th North American Carbon Program Principal Investigators Meeting, Bethesda, MD
- 2016:** ACT America Science Team Meeting, State College, PA
- 2016:** 44th NOAA ESRL Global Monitoring Annual Conference, Boulder, CO

2016: INFLUX workshop, National Institute of Standards and Technology, Gaithersburg, MD
2015: Fall AGU (American Geophysical Union) Meeting, San Francisco, CA
2015: ACT-America Science Team Meeting, Newport News, VA
2015: 18th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases and Related Measurement Techniques (GGMT), La Jolla, CA
2015: Picarro, Inc., training workshop, National Oceanic and Atmospheric Administration, Boulder, CO
2015: 43rd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO
2015: INFLUX workshop, National Institute of Standards and Technology, Gaithersburg, MD
2015: 5th North American Carbon Program Principal Investigators Meeting, Washington, D.C.
2015: Air Emissions Project Meeting, Department of Energy - National Energy Technology Laboratory, Pittsburgh, PA
2014: 42nd NOAA ESRL Global Monitoring Annual Conference, Boulder, CO
2014: INFLUX workshop, National Oceanic and Atmospheric Administration, Boulder, CO
2013: Fall AGU (American Geophysical Union) Meeting, San Francisco, CA
2013: 9th International Carbon Dioxide Conference, Beijing, China
2013: 17th WMO/IAEA Meeting on Carbon Dioxide, Other Greenhouse Gases, and Related Measurement Techniques (GGMT-2013), Beijing, China
2013: 4th North American Carbon Program All-Investigators Meeting, Albuquerque, NM
2011: 16th WMO/IAEA Meeting on Experts on Carbon Dioxide, Other Greenhouse Gases, and Related Tracer Measurement Techniques, Wellington, New Zealand
2011: INFLUX workshop, Purdue University, West Lafayette, IN
2011: 3rd North American Carbon Program Investigators All-Investigators Meeting, New Orleans, LA
2010: Air and Waste Management Association Symposium on Air Quality Measurement Methods and Technology, Los Angeles, CA
2009: 8th International Carbon Dioxide Conference, Jena, Germany
2009: 15th WMO/IAEA Meeting on Experts on Carbon Dioxide, Other Greenhouse Gases, and Related Tracer Measurement Techniques, Jena, Germany
2009: North American Carbon Program All-Investigators Meeting, San Diego, CA
2008: AGU (American Geophysical Union) Fall Meeting, San Francisco, CA
2008: ASCENDS (Active Sensing of CO₂ Emissions of Nights, Days, and Seasons) Workshop, Ann Arbor, MI
2008: NOAA Earth System Research Laboratory Global Monitoring Division Annual Meeting, Boulder, CO
2007: Chequamegon Ecosystem Atmosphere Study Workshop X, Woodruff, WI
2007: North American Carbon Program Investigators Meeting, Colorado Springs, CO
2005: 13th Meeting of Experts on CO₂ Concentration and Related Tracer Measurement Techniques, Boulder, CO
2005: Chequamegon Ecosystem Atmosphere Study Workshop VIII, Woodruff, WI
2004: Modeling and Data Analysis of Atmospheric CO₂ Observations in North America Workshop, Boulder, CO
2004: 7th International Conference on Greenhouse Control Technologies, Vancouver, BC, Canada
2004: Chequamegon Ecosystem Atmosphere Study Workshop VII, St. Paul, MN
2003: Chequamegon Ecosystem Atmosphere Study Workshop VI, Woodruff, WI
2003: Illinois State Water Survey, Champaign, IL
2002: 15th Symposium on Boundary Layers and Turbulence, Wageningen, The Netherlands (student poster presentation award)

- 2000:** 13th International Conference on Clouds and Precipitation, Reno, NV (AMS student scholarship)
- 2000:** 14th Symposium on Boundary Layers and Turbulence, Snowmass, CO
- 1999:** Lake-Induced Convection Experiment (Lake-ICE) Workshop, Champaign, IL
- 1999:** Mixing and Reactive Turbulence Workshop, Boulder, CO (NSF student scholarship)
- 1999:** 9th Annual Atmospheric Radiation Measurement Science Team Meeting, San Antonio, TX
- 1998:** 10th American Meteorological Society Conference on Cloud Physics, Everett, WA