

Kang Sun

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RESEARCH AREAS

Dr. Sun's research focuses on the chemistry and physics of the Earth's atmosphere and their implications for air quality and the global climate change. His current research projects involve remote sensing of atmospheric composition, satellite instrument development, and inverse modeling of air pollutant emissions. He served in the science teams of TEMPO, NASA's first Earth Venture Instrument mission to measure air pollution from geostationary orbit, OMI, the primary global air pollution monitor, and MethaneSAT, a mission initiated by the Environmental Defense Fund (EDF) to quantify global methane leakages from space. He pioneered the measurements of atmospheric ammonia fluxes by open-path sensors and the use of instrument spatial response functions to merge multisensory data into a common grid.

EDUCATION

- 09/2009 – 06/2015 **Princeton University**, Princeton, NJ
Department of Civil and Environmental Engineering
Ph.D. in Environmental Engineering
- 08/2005 – 07/2009 **Peking University**, Beijing, China
College of Environmental Sciences
B.S. in Environmental Sciences
- 09/2006 – 07/2009 **Peking University**, Beijing, China
China Center for Economic Research
B.A. in Economics

RESEARCH EXPERIENCE

- 01/2020 – present **Assistant Professor**, Department of Civil, Structural & Environmental Engineering and RENEW Institute, University at Buffalo, Buffalo, NY
- 01/2018 – 12/2019 **Research Assistant Professor**, Research and Education in eNergy, Environment and Water (RENEW) Institute, University at Buffalo, Buffalo, NY
- 07/2017 – 01/2018 **Atmospheric Physicist**, Smithsonian Astrophysical Observatory, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA
- 08/2015 – 07/2017 **Postdoctoral Research Fellow**, Smithsonian Astrophysical Observatory, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA
- 09/2009 – 06/2015 **Research Assistant**, Department of Civil and Environmental Engineering, Princeton University, Princeton, NJ
- 10/2013 – 08/2014 **Research Intern**, NEC Labs America, Princeton, NJ

TEACHING EXPERIENCE

- Spring 2020 **Instructor**, Department of Civil, Structural & Environmental Engineering,
University at Buffalo
CIE 532–Statistical methods in Environmental and Water Resources Engineering
- Fall 2018, 2019 **Instructor**, Department of Civil, Structural & Environmental Engineering,
University at Buffalo
CIE 546–Environmental Fluid Mechanics
Overall course rating: 4.7/5.0 (2018); 4.3/5.0 (2019)
Instructor rating: 4.8/5.0 (2018); 4.7/5.0 (2019)
- Spring 2012 **Assistant in Instruction**, Department of Civil and Environmental Engineering,
Princeton University
CEE 311–Global Air Pollution

AWARDS AND HONORS

- 2019 **Individual Development Award**, United University Professions Union
- 2019 **2018 Pecora Team Award**, National Land Imaging Program
- Received as a member of Ozone Monitoring Instrument (OMI) International Team
- 2018 **Outstanding Reviewer Award**, IOP Publishing
- Recognised as an Outstanding Reviewer for Environmental Research Letters
- 2017 **ACCESS XIV**, Atmospheric Chemistry Colloquium for Emerging Senior Scientists
- 2015 – 2017 **Postdoctoral fellowship**, Harvard-Smithsonian Center for Astrophysics
- 2012 – 2015 **NASA Graduate Student Fellowship in Earth Systems Science**
- NASA NNX12AN64H: “Validation of TES Ammonia Using an Open-path Quantum Cascade Laser Based Spectrometer”
- 2013 **Gordon Wu Prize for excellence**, Princeton University
- Supporting the final year of study for graduate students who have demonstrated excellence in scholarship and research
- 2009 **First year graduate student fellowship**, Princeton University
- 2007 **May 4th Scholarship**, Peking University
- 2006 **Founder Scholarship**, Peking University
- 2005 **Samsung Scholarship**, Peking University

GRANTS

Funded, submitted at UB

Principle Investigator, NASA ROSES-2020 RRNES, NNX20ZDA001N-RRNES: “A Satellite Data-Driven Framework to Quantify Sources and Lifetimes of Atmospheric Pollutants and Their Responses to the COVID-19 Pandemic”, \$100,000 (my share: 100%), 06/2020–05/2021

Principle Investigator, MethaneSAT LLC: “MethaneSAT/MethaneAIR Science and Algorithms at UB”, \$238,942 (my share: 100%), 01/2020–12/2022

Principle Investigator, Smithsonian Institution, SV0-09004, “Participation in MEaSURES: The Long-Term and Consistent Earth System Data Records of H₂CO, CHOCHO and H₂O from Multi-Satellite UV/Visible Spectra”, \$381,839 (my share: 100%), 09/2019–06/2023

Principle Investigator, Smithsonian Institution, SV8-89022: “Algorithm Development Work to Support both MethaneSAT and MethaneAIR Programs”, \$115,781 (my share: 100%), 05/2019–04/2020

Principle Investigator, NASA ROSES-2018 ACMAP, NNH18ZDA001N-ACMAP: “Observational Data-driven Surface Concentrations Derived from Satellite Columns and Aircraft Profiles”, \$528,471 (my share: 69%, co-I: Dan Li, Boston Univeristy), 05/2019–05/2022

Principle Investigator, Smithsonian Institution, SV8-88021: “A Satellite to Measure Emissions of CH₄ from Gas and Oil Production Regions - Phase A1 Study”, \$52,195 (my share: 100%), 04/2018–03/2019

Not funded (lead PI only), submitted at UB

Principle Investigator, NASA, “Deriving air basin-scale emissions and lifetimes of NO_x and NH₃ using data from OMI, TES, and their successors”, \$387,565, submitted in 09/2019

Principle Investigator, New York State Energy Research and Development Authority (NYSERDA), “Improving our understanding of the spatiotemporal variations of critical air pollutants in NYS by fusing multisensory data”, \$416,332, submitted in 10/2018

Principle Investigator, NSF: “Collaborative research: estimating the lifetime and emissions of atmospheric ammonia with satellite remote sensing”, \$298,074, submitted in 04/2018

Not funded (lead PI only), submitted before joining UB

Principle Investigator, NASA, “Improving the OCO-2 products through advanced spectroscopy and characterization of the Instrument Line Shape (ILS)”, \$355,279, submitted in 09/2017

Principle Investigator, NOAA: “Fusion of multiple satellite observations to investigate the shift of atmospheric chemical regimes over the US and implication for aerosol formation”, \$453,577, submitted in 08/2017

STUDENT ADVISING

Ph.D. students

- Nima Masoudvaziri, Department of Civil, Structural & Environmental Engineering, University at Buffalo, 05/2018–present
- Zolal Ayazpour, Department of Civil, Structural & Environmental Engineering, University at Buffalo, 05/2019–present

Ph.D. Committee Membership

- Xiangyu Jiang, Department of Geography, University at Buffalo, 02/2018–05/2020
- Qiang Pu, Department of Geography, University at Buffalo, 02/2019–present

Master thesis Committee Membership

- Fernando Jose Szasdi Bardales, Department of Civil, Structural & Environmental Engineering, University at Buffalo, 05/2019

PUBLICATIONS

31 peer-reviewed publications (10 first-author), 1 patent, 1627 citations, H-index 20 according to Google Scholar as of August 9, 2020

Corresponding author indicated by *

Ph.D. Dissertation

1. **K. Sun**, Constraining atmospheric ammonia emissions through new observations with an open-path, laser-based sensor, Doctoral dissertation, PRINCETON UNIVERSITY, 2015.

Peer-reviewed Publications at UB

2. [EST'20b] M. A. G Demetillo, A. Navarro, K. K. Knowles, K. P. Fields, J. A. Geddes, C. R. Nowlan, S. J. Janz, L. M. Judd, J. Al-Saadi, **K. Sun**, B. C. McDonald, G. S. Diskin, and S. E. Pusede, Observing Nitrogen Dioxide Air Pollution Inequality Using High-Spatial-Resolution Remote Sensing Measurements in Houston, Texas, *Environmental Science & Technology*, doi:10.1021/acs.est.0c01864, 2020.
3. [STOTEN'20] G. Huang and **K. Sun**, Non-negligible impacts of clean air regulations on the reduction of tropospheric NO₂ over East China during the COVID-19 pandemic observed by OMI and TROPOMI, *Science of The Total Environment*, 745, 141023, doi:10.1016/j.scitotenv.2020.141023, 2020.
4. [EST'20a] L. Golston, D. Pan, **K. Sun**, M. Zondlo, S. Eilerman, J. Peischl, J. A. Neuman, and C. Floerchinger, Variability of ammonia and methane emissions from animal feeding operations in northeastern Colorado, *Environmental Science & Technology*, doi:10.1021/acs.est.0c00301, 2020.
5. [AMT'19] J. Bak, X. Liu, **K. Sun**, K. Chance, and J.-H Kim, Linearization of the effect of slit function changes for improving OMI ozone profile retrievals, *Atmospheric Measurement Techniques*, 12, 3777–3788, doi:10.5194/amt-12-3777-2019, 2019
6. [Icarus'19] T. Karman, I. E. Gordon, A. van der Avoird, Y. I. Baranov, C. Boulet, B. J. Drouin, G. C. Groenenboom, M. Gustafsson, J. Hartmann, R. L. Kurucz, L. S. Rothman, **K. Sun**, K. Sung, R. Thalman, H. Tran, E. H. Wishnow, R. Wordsworth, A. A. Vigin, R. Volkamer, and W. J. van der Zande, Update of the HITRAN collision-induced absorption section, *Icarus*, 328, 160–175, doi:10.1016/j.icarus.2019.02.034, 2019
7. [AMT'18] **K. Sun***, L. Zhu, K. Cady-Pereira, C. Chan Miller, K. Chance, L. Clarisse, P.-F. Coheur, G. González Abad, G. Huang, X. Liu, M. Van Damme, K. Yang, and M. Zondlo, A physics-based approach to oversample multi-satellite, multispecies observations to a common grid, *Atmospheric Measurement Techniques*, 11, 6679–6701, doi:10.5194/amt-11-6679-2018, 2018.

8. [GRL'18] **K. Sun***, I. Gordon, C. Sioris, X. Liu, K. Chance, and S. Wofsy, Reevaluating the use of $O_2\ a^1\Delta_g$ band in spaceborne remote sensing of greenhouse gases, *Geophysical Research Letters*, 45, 5779–5787, doi:10.1029/2018GL077823, 2018.
9. [JGR'18] J. Kelly, C. Parworth, Q. Zhang, D. Miller, **K. Sun**, M. Zondlo, K. Baker, A. Wisthaler, J. Nowak, S. Pusede, R. Cohen, A. Weinheimer, A. Beyersdorf, G. Tonnesen, J. Bash, L. Valin, J. Crawford, A. Fried, and J. Walega, Modeling NH_4NO_3 over the San Joaquin Valley during the 2013 DISCOVER-AQ campaign, *Journal of Geophysical Research-Atmospheres*, 123, 4727–4745. doi:10.1029/2018JD028290,2018.

Peer-reviewed Publications before joining UB

10. [AMT'17a] **K. Sun***, X. Liu, G. Huang, G. González Abad, Z. Cai, K. Chance, and K. Yang, Deriving the slit functions from OMI solar observations and its implications for ozone-profile retrieval, *Atmospheric Measurement Techniques*, 10, 3677–3695, doi:10.5194/amt-10-3677-2017, 2017.
11. [AMT'17b] J. Bak, X. Liu, J. Kim, D. Haffner, K. Chance, K. Yang, and **K Sun**, Characterization and Correction of OMPS Nadir Mapper Measurements for Ozone Profile Retrievals, *Atmospheric Measurement Techniques*, 10, 4373–4388, doi:10.5194/amt-10-4373-2017, 2017.
12. [AMT'17c] **K. Sun***, X. Liu, C. Nowlan, Z. Cai, K. Chance, C. Frankenberg, R. Lee, R. Pollock, R. Rosenberg, and D. Crisp, Characterization of the OCO-2 instrument line shape functions using on-orbit solar measurements, *Atmospheric Measurement Techniques*, 10, 939–953, doi:10.5194/amt-10-939-2017, 2017.
13. [EST'17] **K. Sun**, L. Tao, D. Miller, D. Pan, L. Golston, M. Zondlo, R. Griffin, H. Wallace, Y. Leong, M. Yang, Y. Zhang, D. Mauzerall, and T. Zhu, Vehicle emissions as an important urban ammonia source in the United States and China, *Environmental Science & Technology*, 51, 2472–2481, doi:10.1021/acs.est.6b02805, 2017.
14. [AMT'17d] D. Crisp, R. Pollock, R. Rosenberg, L. Chapsky, R. Lee, F. Oyafuso, C. Frankenberg, C. O'Dell, C. Bruegge, G. Doran, A. Eldering, B. Fisher, D. Fu, M. Gunson, L. Mandrake, G. Osterman, **K. Sun**, T. Taylor, P. Wennberg, and D. Wunch, The on-orbit performance of the Orbiting Carbon Observatory-2 (OCO-2) instrument and its radiometrically calibrated products, *Atmospheric Measurement Techniques*, 10, 59–81, doi:10.5194/amt-10-59-2017, 2017.
15. [ACP'16] D. Jacob, A. Turner, J. Maasackers, J. Sheng, **K. Sun**, X. Liu, K. Chance, I. Aben, J. McKeever, and C. Frankenberg, Satellite observations of atmospheric methane and their value for quantifying methane emissions, *Atmospheric Chemistry and Physics*, 16, 14371–14396, doi:10.5194/acp-16-14371-2016, 2016.
16. [JAOT'16] A. Michel, D. Miller, **K. Sun**, L. Tao, L. Stanton, and M. Zondlo, Long-Path Quantum Cascade LaserBased Sensor for Methane Measurements, *Journal of Atmospheric and Oceanic Technology*, 33, 2373–2384, doi:10.1175/JTECH-D-16-0024.1, 2016.
17. [AFM'15] **K. Sun**, L. Tao, D. Miller, M. Zondlo, K. Shonkwiler, N. Christina, and J. Ham, Open-path eddy covariance measurements of ammonia fluxes from a beef cattle feedlot, *Agricultural and Forest Meteorology*, 213, 193–202, doi:10.1016/j.agrformet.2015.06.007, 2015.
18. [BLM'15] **K. Sun**, D. Li, L. Tao, Z. Zhao, and M. Zondlo, Quantifying the influence of random errors in turbulence measurements on scalar similarity in the atmospheric surface layer, *Boundary-Layer Meteorology*, 157, 61–80, doi:10.1007/s10546-015-0047-3, 2015.

19. [JGR'15a] **K. Sun**, K. Cady-Pereira, D. Miller, L. Tao, M. Zondlo, J. Nowak, J. A. Neuman, T. Mikoviny, M. Müller, A. Wisthaler, A. J. Scarino, and C. Hostetler, Validation of TES ammonia observations at the single pixel scale in the San Joaquin Valley during DISCOVER-AQ, *Journal of Geophysical Research-Atmospheres*, 120, 5140–5154, doi:10.1002/2014JD022846, 2015.
20. [RS'15] R. Meng, F. Zhao, **K. Sun**, R. Zhang, C. Huang, and J. Yang, Analysis of the 2014 “APEC Blue” in Beijing and the surrounding area from multi-source observations, *Remote Sensing*, 7, 15224–15243, doi:10.3390/rs71115224, 2015.
21. [JGR'15b] D. Miller, **K. Sun**, L. Tao, M. Zondlo, J. Nowak, Z. Liu, G. Diskin, G. Sachse, A. Beyersdorf, R. Ferrare, and A. Scarino, Ammonia and methane dairy emissions in the San Joaquin Valley of California from individual feedlot to regional-scale plumes, *Journal of Geophysical Research-Atmospheres*, 120, 9718–9738, doi:10.1002/2015JD023241, 2015.
22. [APB'15] L. Tao, **K. Sun**, D. J. Miller, D. Pan, L. M. Golston and M. A. Zondlo, Low-power mobile sensing platform with multiple open-path gas sensors, *Applied Physics B: Lasers and Optics*, 119, 153–164, doi:10.1007/s00340-015-6069-1, 2015.
23. [EST'14] **K. Sun**, L. Tao, D. Miller, M. Khan, and M. Zondlo, On-road ammonia emissions characterized by mobile, open-path measurements, *Environmental Science & Technology*, 48, 3943–3950, doi:10.1021/es4047704, 2014.
24. [AMT'14] D. Miller, **K. Sun**, L. Tao, M. Khan, and M. Zondlo, Open-path, quantum cascade laser-based sensor for high resolution atmospheric ammonia measurements, *Atmospheric Measurement Techniques*, 7, 81–93, doi:10.5194/amt-7-81-2014, 2014.
25. [APB'13] **K. Sun**, L. Tao, D. Miller, M. Khan, and M. Zondlo, Inline multi-harmonic calibration method for open-path atmospheric ammonia measurements, *Applied Physics B: Lasers and Optics*, 110, 213–222, doi:10.1007/s00340-012-5231-2, 2013.
26. [EST'13] H. Shen, Y. Huang, R. Wang, D. Zhu, W. Li, G. Shen, B. Wang, Y. Zhang, Y. Chen, Y. Lu, H. Chen, T. Li, **K. Sun**, B. Li, W. Liu, J. Liu, and S. Tao, Global atmospheric emissions of polycyclic aromatic hydrocarbons from 1960 to 2008 and future predictions, *Environmental Science & Technology*, 47, 6415–6424, doi:10.1021/es400857z, 2013.
27. [OE'12] L. Tao, **K. Sun**, M. A. Khan, D. J. Miller, and M. A. Zondlo, Compact and portable open-path sensor for simultaneous measurements of atmospheric N₂O and CO using a quantum cascade laser, *Optics Express*, 20, 28106–28118, doi:10.1364/OE.028106, 2012.
28. [OL'12] L. Tao, **K. Sun**, D. J. Miller, M. A. Khan, and M. A. Zondlo, Current and frequency modulation characteristics for continuous-wave quantum cascade lasers at 9.06 μ m, *Optics Letters*, 8, 1358–1360, doi:10.1364/OL.37.001358, 2012.
29. [EST'12] M. Hu, J. Peng, **K. Sun**, D. Yue, S. Guo, A. Wiedensohler, and Z. Wu, Estimation of size-resolved ambient particle density based on the measurement of aerosol number, mass, and chemical size distributions in the winter in Beijing, *Environmental Science & Technology*, 46, 9941–9947, doi:10.1021/es204073t, 2012.
30. [RS'12] A. Khan, D. Schaefer, L. Tao, D. J. Miller, **K. Sun**, M. A. Zondlo, W. A. Harrison, B. Roscoe, and D. J. Lary, Low power greenhouse gas sensors for unmanned aerial vehicles, *Remote Sensing*, 4, 1355–1368, doi:10.3390/rs4051355, 2012.

31. [JGR'11] D. J. Miller, **K. Sun**, M. A. Zondlo, D. Kanter, O. Dubovik, E. J. Welton, D. M. Winker, and P. Ginoux, Assessing boreal forest fire smoke aerosol impacts on U.S. Air quality: A case study using multiple data sets, *Journal of Geophysical Research-Atmospheres*, 116, D22209, doi:10.1029/2011JD016170, 2011.
32. [AE'11] H. Shen, S. Tao, R. Wang, B. Wang, G. Shen, W. Li, S. Su, Y. Huang, X. Wang, W. Liu, B. Li, and **K. Sun**, Global time trends in PAH emissions from motor vehicles, *Atmospheric Environment*, 45, 2067–2073, doi:10.1016/j.atmosenv.2011.01.054, 2011.

Patents, Invention Records

Patents:

33. **K. Sun**, L. Tao, D. Miller, M.A. Khan, M. Zondlo, patent #: US 8,970,842 B2, “Multi-harmonic inline reference cell for optical trace gas sensing”, United States Patent and Trademark Office, March 3, 2015.

Invention disclosures:

34. M.A. Zondlo, L. Tao, and **K. Sun**, Invention # 13-2843-1, Open-path, optical trace gas sensor with integrated three dimensional wind speed and temperatures measurements, Office of Technology Licensing and Intellectual Property, Princeton University, August 6, 2012.

PRESENTATIONS

- **K. Sun** and D. Li, Observational Data-Driven Surface Concentration Derived from Satellite Columns, Oral presentation in AMS Annual Meeting, Boston, MA, 01/2020.
- **K. Sun**, X. Lan, C. Sweeney, and Y. Zhang, Methane enhancements and hotspot emissions over the CONUS revealed by oversampling TROPOMI data, Oral presentation in AGU Fall Meeting, San Francisco, CA, 12/2019.
- **K. Sun**, Observation-based, spatial-resolved surface concentrations and their implications for emission and deposition estimation, NADP 2019 Fall Meeting, Boulder, CO, 11/2019.
- **K. Sun**, Observational data-driven constraints on the emissions and lifetimes of reactive nitrogen, invited talk at NADP Total Deposition Science Committee (TDep) agricultural workshop, Boulder, CO, 11/2019.
- **K. Sun**, A Tale of Two Molecules: NH₃ and CH₄, Atmospheric & Environmental Chemistry Seminars, Harvard University, Cambridge, MA, 10/2019.
- **K. Sun**, Deriving surface concentrations from TEMPO columns and vertical profile shapes based on DISCOVER-AQ, 2019 TEMPO Science Team Meeting, Madison, WI, 06/2019.
- **K. Sun**, Reevaluating the use of O₂ $a^1\Delta_g$ band in spaceborne remote sensing of greenhouse gases, 15th International HITRAN Biennial Conference, Cambridge, MA, 06/2018.
- **K. Sun**, Quantifying urban nitrogen emission and deposition through optical sensing techniques, invited talk at NADP 2017 Fall Meeting, San Diego, CA, 10/2017.
- **K. Sun**, High-resolution mapping of air pollution by oversampling satellite observations, Gordon Research Conference (GRC) in Atmospheric Chemistry, Newry, ME, 08/2017.

- **K. Sun**, Constraining atmospheric ammonia emissions through novel observations, ACCESS XIV, 14th Atmospheric Chemistry Colloquium for Emerging Senior Scientists, Brookhaven National Laboratory, NY, 07/2017.
- **K. Sun**, Tackle grand environmental challenges through atmospheric observations and modeling, Research seminar at Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, 03/2017.
- **K. Sun**, Observing air quality and the climate at the molecular and global level, Southern University of Science and Technology Global Scientist Forum, Shenzhen, China, 03/2017.
- **K. Sun**, X. Liu, Z. Cai, G. Huang, G. González Abad, K. Yang, and K. Chance, Deriving the Instrument Transfer Function from OMI solar observations and its implications for ozone retrievals, Oral presentation in AGU Fall Meeting, San Francisco, CA, 12/2016.
- **K. Sun**, X. Liu, G. González Abad, Z. Cai, C. Nowlan, K. Yang, and K. Chance, What solar measurements can tell about instrument transfer function—Lessons learned from OMI and OCO-2, Oral presentation in Aura Science Team Meeting, Rotterdam, Netherlands, 08/2016.
- **K. Sun**, Observation and inverse modeling of atmospheric methane and ammonia in China, Chinese Environmental Scholars Forum 2016, Princeton, NJ, 06/2016.
- **K. Sun**, L. Tao, D. J. Miller, M. A. Zondlo, K. Cady-Pereira, J. Nowak, A. Wisthaler, T. Jones, J. Chen, J. Budney, S. Wofsy, X. Liu, and K. Chance, Validating satellite NH_3 and CO_2 at the pixel scale using portable, ground-based sensors, Oral presentation in Joint ACE-Odin Science Team Meeting, Toronto, Canada, 10/2015.
- **K. Sun**, L. Tao, D. J. Miller, D. Pan, L. Golston, Y. Tian, J. Hu, M. Huang, T. Wang, and M. A. Zondlo, Quantifying reactive nitrogen emissions using open-path, quantum cascade laser-based sensors, Oral presentation in CLEO: Applications and Technology, San Jose, CA, 05/2015.
- **K. Sun**, L. Tao, D. J. Miller, D. Pan, L. Golston, K. Cady-Pereira, C. Clerbaux, P. Coheur, M. Van Damme, J. Nowak, A. Wisthaler, and M. A. Zondlo, Validation of satellite ammonia retrievals using ground-based mobile measurements, Oral presentation in NASA Sounder Science Team Meeting, Greenbelt, MD, 09/2014.
- **K. Sun**, L. Tao, D. J. Miller, and M. A. Zondlo, On-road measurements from mobile, open-path sensors and intercomparisons with satellite, Oral presentation in Field Laser Applications in Industry and Research (FLAIR), Florence, Italy, 05/2014.
- **K. Sun**, L. Tao, D. J. Miller, and M. A. Zondlo, Spatial and temporal variations of atmospheric ammonia in Houston during DISCOVER-AQ Texas, Oral presentation in DISCOVER-AQ Science Team Meeting, NASA LaRC, Hampton, VA, 02/2014.
- **K. Sun**, L. Tao, D. J. Miller, M. A. Khan, and M. A. Zondlo, Mapping atmospheric NH_3 emissions using a mobile open-path sensor, Oral presentation in AGU Fall Meeting, San Francisco, CA, 12/2012.
- **K. Sun**, L. Tao, D. J. Miller, M. A. Khan, and M. A. Zondlo, Novel in-situ calibrations for open-path ammonia sensing, Oral presentation in CLEO: Applications and Technology, San Jose, CA, 05/2012.

- **K. Sun**, M. A. Khan, J. M. David, K. Rafferty, J. Schreiber, C. Puzio, M. Portenti, J. Silver, and A. Z. Mark, Open-path atmospheric N₂O, CO, and NH₃ measurements using quantum cascade laser spectroscopy, Oral presentation in AGU Fall Meeting, San Francisco, CA, 12/2010.

PROFESSIONAL ACTIVITIES

Member, American Geophysical Union, 2010–present

Member, Optical Society of America, 2011–present

Member, American Meteorological Society, 2017–present

Proposal reviewer for NOAA Atmospheric Chemistry, Carbon Cycle & Climate program

Reviewer for *Journal of Geophysical Research-Atmospheres*, *Atmospheric Chemistry and Physics*, *Atmospheric Measurement Techniques*, *Environmental Science & Technology*, *Environmental Science & Technology Letters*, *Environmental Research Letters*, *Optics Communications*, *Journal of Applied Remote Sensing*, *Chinese Optics Letters*, *International Journal of Remote Sensing*, *Sensors*, *Atmosphere, Remote Sensing*, *Science of the Total Environment*, *Environmental Science and Pollution Research*, *Earth-Science Reviews*

Reviewer for the European Space Agency Sentinel-5 satellite CH₄/CO Level 2 product algorithm theoretical basis document (ATBD)

MEDIA REPORTS

Feature, UBNOW, “UB engineer awarded NASA grant to study COVID-19 air pollution impact”, May 21, <http://www.buffalo.edu/ubnow/stories/2020/05/nasa-grant-covid-air-pollution.html>

Feature, NASA’s Earth Science News, “NASA Funds Four Research Projects on COVID-19 Impacts”, May 13, 2020, <https://www.nasa.gov/feature/goddard/2020/nasa-funds-four-research-projects-on-covid-19-impacts>

Feature, UBNOW, “NASA-funded study aims to map air pollution in front of our faces”, August 2, 2019, <http://www.buffalo.edu/news/releases/2019/07/033.html>

Smithsonian Astrophysical Observatory science update, “Modeling Exoplanet Atmospheres”, July 19, 2019, <https://www.cfa.harvard.edu/news/su201928>

Feature, NASA Earth Observatory Image of the Day, “The Seasonal Rhythms of Ammonia”, December 10, 2018, <https://earthobservatory.nasa.gov/images/144351/the-seasonal-rhythms-of-ammonia>.

Feature, Princeton homepage, “Vehicles, not farms, are likely source of smog-causing ammonia”, March 30, 2017, <http://www.princeton.edu/main/news/archive/S49/08/77C66/?section=topstories>.

Feature, *Research at Princeton*, “Portable sensors measure air pollutants”, November 19, 2013, <http://www.princeton.edu/research/invention/archive/archive/?id=11578>.

Press release, NASA, September 25, 2013: “Mobile laboratories measure air quality in Houston”, http://www.nasa.gov/mission_pages/discover-aq/news/mobile-laboratories-measure-air-quality-in-houston/#.VFzbWfnF-kL.

Feature, Princeton SEAS homepage, “Innovation forum business perspective to research”, March 15, 2013, <http://www.princeton.edu/engineering/news/archive/?id=9872>.

Feature, *Fondriest Environmental Monitor*, “Mobile air sensor lab takes a California road trip”, February 27, 2013, <http://www.fondriest.com/news/mobile-air-sensor-lab-takes-a-california-road-trip.htm>.

Feature, Princeton homepage, “Fund bridges gap between lab and marketplace”, January 24, 2013, <http://www.princeton.edu/main/news/archive/S35/89/52G24/index.xml?section=topstories>.