

## Personal

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## Education

Ph.D. Chemical Engineering, University of Texas - Austin, 2005

M.S. Chemical Engineering, University of Texas - Austin, 2003

B.S. Chemical Engineering, University of Missouri - Rolla, *Cum Laude* 1998

## Professional Experience

Associate Professor 2012–Present

Department of Environmental Sciences & Engineering

University of North Carolina - Chapel Hill

Assistant Professor 2005–2012

Department of Environmental Sciences & Engineering

University of North Carolina - Chapel Hill

Founder, Chief Scientific Officer, BioDeptronix LLC 2011–present

Research Assistant - Ph.D. Candidate 2003–2005

University of Texas - Austin

Department of Chemical Engineering

Research Advisor: **David T. Allen** Ph.D.

Ph.D. Dissertation: *Implementation of Process Analysis in a Three-dimensional Air Quality Model*

Research Assistant - Masters Candidate 2000–2003

University of Texas - Austin

Department of Chemical Engineering

Research Advisor: **David T. Allen** Ph.D.

Process Engineer 1998–2000

Exxonmobil, Baton Rouge, LA

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<sup>1</sup>Last revision: 12/02/2016

## Honors

### Faculty Awards

6. National Center of Atmospheric Research Visiting Professor Faculty Fellowship Program 2016
5. National Science Foundation Innovation Corps Teams Program for Faculty Entrepreneurship 2013
4. NC Translational and Clinical Sciences Institute Kickstart Award for Faculty Entrepreneurship 2012
3. National Center of Atmospheric Research Visiting Professor Faculty Fellowship Program 2007
2. Thrust - Uniden Endowed Graduate Fellowship in Engineering 2002–2005
1. National Consortiums for Graduate Degrees for Minorities in Engineering and Science Fellowship 2000–2002

### Student Awards

17. Winner Greenberg Award for Excellence in Doctoral Research Hang Nguyen 2016
16. Winner National Center Atmospheric Research's Advanced Study Program's Graduate Student Fellowship Chitsan Wang 2016
15. Winner Student Poster NC Breathe Conference Shih Ying Chang 2016
14. 3rd Place Winner Student Poster Competition Air & Waste Management Association Annual Conference Shih Ying Chang 2015
13. Winner UNC Gillings School of Global Public Health's Koch Travel Award Pradeepa Vennam 2014
12. Winner UNC Gillings School of Global Public Health's Koch Travel Award Shih Ying Chang 2014
11. Winner 9th annual Joseph A. Hartman Student Paper Competition from the PARTNER Center of Excellence Pradeepa Vennam 2013
10. Winner of UNC Environmental Sciences Achievement Award Evan Couzo 2012
9. 2nd Place Winner of Air and Waste Management Association Doctoral Dissertation Award Barron Henderson 2012
8. Winner of American Geophysical Union Outstanding Student Paper Award Harshal Parikh 2011
7. Winner of American Geophysical Union Outstanding Student Paper Award Evan Couzo 2011
6. Winner Student Travel Award American Association for Aerosol Research Annual Conference Harshal Parikh 2010
5. Winner Student Travel Award American Geophysical Union Harshal Parikh 2010

4. 2nd Place Winner National Leadership Training Organization (NLTO) Presentation Competition Barron Henderson 2009
3. Winner of UNC Environmental Sciences Achievement Award Barron Henderson 2008
2. Winner National Center Atmospheric Research's Advanced Study Program's Graduate Student Fellowship Barron Henderson 2007
1. Winner Weiss Urban Livability Fellowship Leiran Biton 2005

## Memberships in Professional Societies

American Association for Aerosol Research	Since 2005
American Meteorological Society	Since 2007
American Geophysical Union	Since 2005
Association of Environmental Engineering and Science Professors	Since 2005
Air & Waste Management Association	Since 2004
Tau Beta Pi Honor Society	2001–2005
American Association for Aerosol Research	2000–2005
American Institute of Chemical Engineers	1997–2006
Chemical Engineer Honor Society - Omega Chi Epsilon	1995–1998
National Society of Hispanic Professional Engineers	1995–1998

## Bibliography

### Books and Chapters

4. Vennam, L. #, Arunachalam, S., Baek B.H., Omary M., Binkowski F.S., Olsen S., Mathur R., Vizuete W., Fleming G., “A Multiscale Modeling Study to Assess Impacts of Full-Flight Aircraft Emissions on Upper Troposphere and Surface Air Quality, Air Pollution Modeling and its Application XXIII”, D.G. Steyn and R. Mathur (eds.), ISBN: 978-3-319-04378-4 (Print) 978-3-319-04379-1 (Online), Springer, The Netherlands, (2014)
3. Li Y., Puggioni G., Jat P. Hasan M., Serre M., Sexton K., West J.J., Arunachalam S., Shankar U., Vizuete W., Farooqui Z., “Burden of Disease from Outdoor Air Pollution” in Gibson J.M., Brammer A., Davidson C., Folley T., Launay F., Thomassen J., eds. “Environmental Burden of Disease Assessment” Springer, New York, pp. 73-108 (2013)
2. Macdonald-Gibson, J. (editor), “National Strategy and Action Plan for Environmental Health United Arab Emirates” Environment Agency Abu Dhabi, United Arab Emirates, 2010.
1. Macdonald-Gibson, J. (editor), “The State of Environmental Health in the United Arab Emirates 2010” Environment Agency Abu Dhabi, United Arab Emirates, 2010.

## Peer Reviewed Publications

Symbols denote:

#, a doctoral student supervised by Dr. Vizquete

&, a masters student supervised by Dr. Vizquete

54. Wang C.#, Wiedinmyer C., Ashworth K., Vizquete W., “Potential Air Quality Impacts of Marijuana Cultivation Facilities in Denver, Colorado” *in review Environmental Science & Technology*, approx. 25 pp of manuscript (2016)
53. Asworth K., Vizquete W., Wang C.#, “High Time to Assess the Environmental Impacts of Cannabis Cultivation” *in review Science Policy Forum*, approx. 5 pp of manuscript (2016)
52. Vennam L.#, Vizquete W., Talgo K., Omary M., Binkowski F., Xing J., Mathur R., Arunachalam S., “Modeled full-flight aircraft emissions impacts on air quality and their sensitivity to grid resolution” *in review Environmental Science & Technology*, approx. 25 pp of manuscript (2016)
51. Lin Y.H., Arashiroa M., Sexton K.G., Vizquete W., Gold A., Jaspers I., Fry R., Surratt J., “Toxicogenomic Profiling in Human Lung Cells to Assess the Early Biological Responses upon Exposure to Isoprene-Derived Secondary Organic Aerosol” *in review Environmental Science & Technology*, approx. 25 pp of manuscript, Interdisciplinary Project, Role: Lead Engineer, (2016)
50. Chang S.Y.#, Vizquete W., Serre M., Vennam L.P., Omary M., Isakov V., Breen M., Arunachalam S., “Finely Resolved On-road PM<sub>2.5</sub> and Estimated Premature Mortality in Central North Carolina” *in review Risk Analysis*, approx. 25 pp of manuscript, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)
49. Reyes J., Xu Y.#, Vizquete W., Serre M., “Incorporating Regionalized Air Quality Model Performance evaluation in a nationwide geostatistical data integration of daily PM<sub>2.5</sub>” *in review Environmental Science & Technology*, approx. 25 pp of manuscript, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)
48. Xu Y.#, Serre M., Reyes J., Vizquete W., “BME Integration of Ozone Observations and CTM Predictions at Multiple Time Scales” *in review Environmental Science & Technology*, approx. 25 pp of manuscript, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)
47. Cacciottolo M., Wang X., Driscoll I., Woodward N., Saffari A., Reyes J.#, Serre M., Vizquete W., Sioutas C., Morgan T., Gatz M., Chui H.C., Shumaker S.A., Resnick S.M., Espeland M.A., Finch C.E., Chen J-C., “Particulate air pollutants, APOE alleles, and their contributions to cognitive impairment in older women and to amyloidogenesis in experimental models” *in press Translational Psychiatry*, approx. 25 pp of manuscript, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)
46. Reyes J., Xu Y.#, Vizquete W., Serre M., “Regionalized PM<sub>2.5</sub> Community Multiscale Air Quality model performance evaluation across a continuous spatiotemporal domain” *Atmospheric Environment*, Vol. 148, pp. 258-265, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)

45. Casanova R., Wang X., Reyes J.#, Akita Y., Serre M., Vizuete W., Chui H.C., Driscoll I., Resnick M., Espeland M., Chen J.C., “A Voxel-Based Morphometry Study Reveals Local Brain Structural Alterations Associated with Ambient Fine Particles in Older Women” *Neurology* Vol. 10 p 495, , Interdisciplinary Project, Role: Lead Air Quality Modeler, (2016)
44. Arashiro M., Lin Y-H., Sexton K., Zhang Z., Jaspers I., Fry R., Vizuete, W., Gold A., Surratt J., “In Vitro Exposures to Isoprene-Derived Secondary Organic Aerosol: Assessing the Effects on Inflammation-Associated Gene Expression in Human Bronchial Epithelial Cells using a Direct Deposition Approach” *Atmospheric Chemistry and Physics*, 16 (22), 14079-14090, Interdisciplinary Project, Role: Lead Engineer, (2016)
43. Xu Y.#, Serre M., Reyes J., Vizuete W., “Bayesian Maximum Entropy Integration of Ozone Observations and Model Predictions: A National Application” *Environmental Science & Technology*, 50 (8), pp. 4393-4400 (2016)
42. Zavala J.#, OBriena B., Lichtveld L., Sexton K.G., Rusyn I., Jaspers I., Vizuete W., “Assessment of Biological Responses of EpiAirway™ 3-D Cell Constructs vs. A549 Cells for Determining Toxicity of Ambient Air Pollution” *Inhalation Toxicology*, 28 (6), pp. 251-9, Interdisciplinary Project, Role: Lead Engineer, (2016)
41. Couzo E.#, McCann J.#, Vizuete W., Blumsack S., West J.J., “Modeled response of ozone to electricity generation emissions in the northeastern United States using three sensitivity techniques” *Journal of the Air and Waste Management Association*, 66 (5), pp. 456-69, (2016)
40. Riedel T. P., Lin Y.-H., Zhang Z., Chu K., Thornton J. A., Vizuete W., Gold A., Surratt J. D., “Constraining condensed-phase formation kinetics of secondary organic aerosol components from isoprene epoxydiols” *Atmospheric Chemistry and Physics*, 15, pp. 28289-28316 (2016)
39. Vizuete W., Sexton K., Nguyen H.#, Smeester L., Aagaard K.M., Shope C., Lefer B., Flynn J.H., Martin E., Alvarez S., Erickson M.H., Fry R., “From the Field to the Laboratory: Air-Pollutant-Induced Genomic Effects in Lung Cells” *Environmental Health Insights*, Volume 9(s4), pp. 15-23, Interdisciplinary Project, Role: Lead Engineer, (2015)
38. Chang S.Y.#, Vizuete W., Breen M., Isakov V., Arunachalam S., “Comparison of highly resolved model-based exposure metrics for traffic related air pollutants to support environmental health studies” *Int. J. Environ. Res. Public Health*, Volume 12, Issue 12, pp. 15605-15625, Interdisciplinary Project, Role: Lead Engineer, (2015)
37. Vennam L.P.#, Arunachalam S., Vizuete W., “Evaluation of model-predicted Hazardous Air Pollutants (HAPs) near a mid-sized U.S. airport” *Atmospheric Environment*, Volume 119, 107-117 (2015)
36. Chang S.#, Arunachalam S., Valencia A., Talgo K., Naess B., Isakov V., Schultz B., Palma T., Vizuete W., “ A Modeling Framework for Characterizing Near-Road Air Pollutant Concentrations at Community Scales” *Science of the Total Environment*, 538, pp. 905-921 (2015)
35. Riedel T., Lin Y-H, Budisulistiorini S, Gaston C, Thornton J., Zhang Z., Vizuete W., Gold A., Surratt J., “Heterogeneous reactions of isoprene-derived epoxides: reaction probabilities and molar secondary organic aerosol yield estimates” *Environmental Science & Technology Letters*, 2 (2), pp 3842 (2015)

34. Couzo E.#, Lefer B., Stutz J., Yarwood G., Karamchandani P., Henderson B., Vizueté W., "Impacts of heterogeneous HONO formation on radical sources and ozone chemistry in Houston, Texas" *Atmospheric Environment*, Volume 112, pp. 344-355 (2015)
33. Karamchandani P., Emery C., Yarwood G., Lefer B., Stutz J., Couzo E.#, Vizueté W., "Implementation and Refinement of a Surface Model for Heterogeneous HONO Formation in a 3-D Chemical Transport Model" *Atmospheric Environment*, Volume 112, pp. 356-368 (2015)
32. Seltzer K., Pinder R., Vizueté W., Henderson B., "Evaluation of updated nitric acid chemistry on ozone precursors and radiative effects" *Atmos. Chem. Phys.*, 15, 5973-5986 (2015)
31. Chen Y.&, Sexton K., Jerry R., Surratt J., Vizueté W., "Assessment of SAPRC07 with updated Isoprene Chemistry against Outdoor Chamber Experiments" *Atmospheric Environment*, Vol. 105, pp. 109-120 (2015)
30. Lin Y., Sexton K., Jaspers I., Li Y., Surratt J., Vizueté W., "Application of chemical vapor generation systems to deliver constant gas concentrations for in vitro exposure to volatile organic compounds" *Environmental Science Processes & Impacts*, Vol. 16, pp. 2703-2710, Interdisciplinary Project, Role: Lead Engineer, (2014)
29. Zavala J.#, Lichtveld K., Ebersviller S, Carson J.L., Walters G.W., Jaspers I., Jeffries H.E., Sexton K.G., Vizueté W., "The Gillings Sampler A Portable Electrostatic Air Sampler as an Alternative Method for Aerosol In Vitro Exposure Studies" *Chemico-Biological Interactions*, Vol. 220, pp. 158-168, Interdisciplinary Project, Role: Lead Engineer, (2014)
28. Haman C.L., Couzo E.#, Flynn J.H., Vizueté W., Heffron B., Lefer B.L., "Boundary Layer Height and Ground-Level Ozone Evolution in Houston, Texas" *Journal of Geophysical Research Atmospheres*, Vol. 119, Issue 10, pp. 6230-6245 (2014)
27. Weir C.H.#, Yeatts K.B., Sarnat J.A., Vizueté W., Salo P.M., Jaramillo R., Cohn R., Chu H., Zeldin D.C., London S.J., "Nitrogen Dioxide and Allergic Sensitization in the 2005-2006 National Health and Nutrition Examination Survey" *Respiratory Medicine*, 107(11) pp. 1763-72, Interdisciplinary Project, Role: Lead Engineer, (2013)
26. Parikh H.M.#, Jeffries H.E., Sexton K.G., Luecken D.J., Kamens R.M., Vizueté W., "Evaluation of Aromatic Oxidation Reactions in Seven Chemical Mechanisms with an Outdoor Chamber" *Environmental Chemistry*, Vol. 10, pp. 245-259 (2013)
25. Couzo E.#, Jeffries H.E., Vizueté W., "Houston's rapid ozone increases: Preconditions and geographic origins" *Environmental Chemistry*, Vol. 10, pp. 260-268 (2013)
24. Lin Y.-H., Zhang H., Pye H.O.T., Zhanga Z., Martha W.J., Parka S., Arashiroa M., Cuia T., Budisulistiorinia S.H., Sexton K.G., Vizueté W., Xie Y., Luecken D., Piletic I.R., Edney E.O., Bartolotti L.C., Gold A., Surratt J.D., "Epoxide as a precursor to Secondary Organic Aerosol Formation from the Photooxidation of Isoprene in the Presence of Nitrogen Oxides" *Proceedings of the National Academy of Sciences*, Vol. 110, pp. 6718-6723 (2013)
23. Kolling J.&, Pleim J.E., Jeffries H.E., Vizueté W., "A Multisensor Evaluation of the Asymmetric Convective Model, Version 2 in Southeast Texas" *Journal of the Air and Waste Management Association*, Vol. 63, Issue 1, pp. 41-53 (2012)

22. Lichtveld K., Ebersviller S.M., Sexton K.G., Vizuette W., Jaspers I., Jeffries H.E., "In Vitro Exposures in Diesel Exhaust Atmospheres: Resuspension of PM from Filters Verses Direct Deposition of PM from Air" *Environmental Science & Technology*, Vol. 46, Issue 16, pp. 9062-9070, Interdisciplinary Project, Role: Lead Engineer, (2012)
21. Parikh H. M.#, Carlton A.G., Zhou Y., Zhang H., Kamens R.M., Vizuette W., "Modeling Secondary Organic Aerosol from Aromatic Mixtures Using a Dynamic Partitioning Approach Incorporating Particle Aqueous-phase Chemistry (II)" *Atmospheric Environment*, vol. 56, pp. 250-260 (2012)
20. Couzo E.#, Olatosi A.&, Jeffries H. E., Vizuette W., "Assessment of a Regulatory Model Performance Relative to Large Spatial Inhomogeneity in Observed Ozone in Houston, TX" *Journal of the Air and Waste Management Association*, vol. 62, pp. 696-706 (2012)
19. Henderson B.H.#, Pinder R.W., Crooks J., Cohen R.C., Carlton A.G., Pye H.O.T., Vizuette W., "Combining Bayesian Methods and Aircraft Observations to Constrain the HO+NO<sub>2</sub> Reaction Rate" *Atmos. Chem. Phys*, vol. 11, 1, pp. 275-291 (2012)
18. Henderson B. H.#, Kimura Y., McDonald-Buller E., Allen D. T., Vizuette W., "Comparison of Lagrangian Process Analysis Tools for Eulerian Air Quality Models" *Atmospheric Environment*, vol. 45, 29, pp. 5200-5211 (2011)
17. Parikh H. M.#, Carlton A.G., Vizuette W., Chen E.H., Kamens R.M., "Modeling Secondary Organic Aerosol Using a Dynamic Partitioning Approach and Particle Aqueous-phase Processes" *Atmospheric Environment*, vol. 45, 5, pp. 1126-1137 (2011)
16. Vizuette W., Jeffries H., Tesche T.W., Couzo E.&, "Issues with Ozone Attainment Methodology for Houston, TX" *Journal of the Air and Waste Management Association*, vol. 61, 3, pp. 238-253 (2011)
15. Henderson B.H.#, Pinder R. W., Crooks J., Cohen R.C., Wennberg P.O., Hutzell W.T., Sarwar G., Goliff W.S., Stockwell W.R., Fahr A., Mathur R., Carlton A.G., Vizuette W., "Evaluation Of Simulated Photochemical Partitioning Of Oxidized Nitrogen in the Upper Troposphere" *Atmos. Chem. Phys*, vol. 11, 1, pp. 275-291 (2011)
14. Li Y., Gibson J.M., Jat P., Puggioni G., Hasan M., West J.J., Vizuette W., Sexton K., Serre M., "Burden of Disease Attributed to Anthropogenic Air Pollution in the United Arab Emirates: Estimates Based on Observed Air Quality Data" *Science of the Total Environment*, 408, pp. 5748-5793, Interdisciplinary Project, Role: Lead Air Quality Modeler, (2010)
13. Henderson B.H.&, Vizuette W., Jeffries H., Kim B., "The Influence of Model Resolution on Industrial Releases And Ozone Formation" *Journal of the Air and Waste Management Association*, Vol. 60, 9, pp 1105-1117 (2010)
12. Vizuette W., Biton L.&, Jeffries H., Couzo E.&, "Evaluation of Relative Reduction Factor Methodology for Demonstrating Attainment of 8-Hr Ozone In Houston, TX" *Journal of the Air and Waste Management Association*, vol. 60, 7, pp. 838-848 (2010)
11. Olaguer E. P., Rappenglueck B., Lefer B., Stutz J., Dibb J., Griffin R., Brune B., Shauck M., Buhrg M., Jeffries H., Vizuette W., Pinto J., "Deciphering the Role of Radical Sources During the Second Texas Air Quality Study" *Journal of the Air and Waste Management Association*, Vol. 59, 11, pp. 1,258-1,277 (2009)

10. Vizuete W., Kim B., Jeffries H. E., Kimura Y., Allen D. T., Kioumourtzoglou M.&, Biton L.&, Henderson, B.H.&, "Modeling Ozone Formation from Industrial Emission Events in Houston, Texas" *Atmospheric Environment*, 42, pp. 7641-7650, (2008)
9. Kimura Y., McDonald-Buller E., Vizuete W., Jeffries H. E., Allen D. T., "Application of a Lagrangian Process Analysis Tool to Characterize Ozone Formation in Southeast Texas" *Atmospheric Environment*, 42, pp. 5743-5759, (2008)
8. Nam J., Webster M., Kimura Y., Jeffries H., Vizuete W., Allen D. T., "Reductions in Ozone Concentrations Due to Controls On Variability in Industrial Flare Emissions in Houston, Texas" *Atmospheric Environment*, 42, 4198 - 4211 (2008)
7. Song J., Vizuete W., Chang S., Allen D. T., Kimura Y., Yarwood G., Kioumourtzoglou M., McDonald-Buller E., "Comparisons of Modeled and Observed Isoprene Concentrations in Southeast Texas." *Atmospheric Environment*, 42, pp. 1922-1944, (2008)
6. Webster M., Nam J., Kimura Y., Jeffries H., Vizuete W., Symons M., Allen D., "The Effect of Variability in Industrial Emissions on Ozone Formation in Houston, Texas" *Atmospheric Environment*, 41, pp. 9580-9593, (2007)
5. Nam J., Kimura Y., Vizuete W., Murphy C., Allen D.T., "Modeling the Impacts of Emission Events on Ozone Formation in Houston, Texas," *Atmospheric Environment*, 40, pp. 5329 - 5341 (2006)
4. Junquera V., Russell M., Vizuete W., Kimura Y., Allen D. T., "Wildfires in Eastern Texas in August and September 2000: Emissions, Aircraft Measurements and Impact on Photochemistry" *Atmospheric Environment* 39 (27) pp. 4983-4996 (2005)
3. Vizuete W., Junquera V., Allen D. T., "Sesquiterpene Emissions and Secondary Organic Aerosol Formation Potentials for Southeast Texas," *Aerosol Science & Technology*, 38 (S1), pp. 167-181 (2004)
2. Vizuete W., Junquera V., McDonald-Buller E., McGaughey G., Yarwood G., Allen D. T., "Effects of Temperature and Land Use on Predictions of Biogenic Emissions in Eastern Texas, USA", *Atmospheric Environment* 36 (20) pp. 3321-3337 (2002)
1. Barnett, W.M., Baughman R.G., Collier H.L., Vizuete W., "Synthesis and Crystal Structure of 1,1-di(ethylpropionato)-2,2-biimidazole, a macromolecular precursor", *Journal of Chemical Crystallography* 29 (7), pp. 765 - 768 (1999)

### Products of interdisciplinary scholarship

5. Production and application of two prototype particle phase *in vitro* instruments collaborations with mechanical engineers, chemists, toxicologists, faculty from the UNC School of Medicine, and the UNC Design Center 2013-2016
4. Production and application of two prototype gas phase *in vitro* instruments collaborations with mechanical engineers, chemists, toxicologists, faculty from the UNC School of Medicine, and the UNC Design Center 2013-2016
3. United States patent serial no. 13/559,004 for Systems and Methods for Collecting and Depositing Particulate Matter Onto Tissue Samples 2013



2. Development and implementation of a business plan for commercializing research prototypes that included collaborations with local serial entrepreneurs, small scale manufacturers, the UNC Kenan-Flagler Business School, and the NC Translational and Clinical Sciences Institute 2012
1. Startup and acting Chief Science Officer for BioDepronix LLC company to commercialize research patents 2011–present

### Products of engage scholarship

34. Developed 6th grade curriculum for Air quality and human stewardship topic for Atmosphere/Weather Science unit implemented for 100 students at McDougle Middle School (October 2016)
33. Invited speaker for UNC World Views symposium for community college educators, entitled “From Local to Global: Exploring Environmental Sustainability” (November 2016)
32. Invited Speaker East Chapel Hill Rotary Club (November 2016)
31. “Does the atmosphere make pollution more deadly?” Invited Speaker and advisor Universidad San Francisco de Quito, Quito, Ecuador (April 2016)
30. “Insights into Atmospheric Chemistry” Invited Speaker Missouri University of Science and Technology Rolla, MO, USA (April 2016)
29. “Lung cell exposures in the lab and field: Linking atmospheric chemistry and genomic responses” Invited Speaker and advisor Health Canada, Ottawa, Canada (March 2016)
28. “Whats Up? — Exploring atmospheric chemistry and air pollution” Invited Speaker Durham Public Schools Teacher Workshop (March 2016)
27. Featured in educational air pollution video North Carolina Division of Air Quality <http://itsourair.org/1-4-criteria-pollutants-closer-look-ozone> (October 2015)
26. “Insights into Atmospheric Chemistry” Invited Speaker The National GEM Consortiums 2015 Annual Meeting for Minority STEM researchers, Boston, MA, USA (August 2015)
25. “In vitro biosensors” Invited Speaker and advisor University of Munster, Munster, Germany (October 2014)
24. Speaker NASA Teacher Workshop of Air Quality Concerns in a Changing Climate (September 2014)
23. “Effects of anthropogenic air pollution on health in the U.A.E.” Invited speaker Qatar University Life Science Symposium, Doha, Qatar (December 2013)
22. “Houston: A tale of two ozones” Invited speaker and advisor at Barcelona University, Barcelona Spain (December 2013)
21. “Patentable instrument for analyzing airborne substances and their toxicity.” Invited seminar at Research Triangle Park (March 2013)

20. "A tale of two Ozones: Houston Texas" Invited seminar at University of Houston (November 2012)
19. "Lunch with a Scientist" Invited speaker at the ScienceWriters conference (May 2012)
18. "Air Pollution: A global killer" Invited speaker and advisor at Universidad Nacional de Asuncion, Paraguay (April 2011).
17. "Air Pollution: A global killer" Invited speaker and advisor at Universidad Catolica Asuncion, Paraguay (April 2011).
16. "Outdoor Air Quality: Improving Understanding Informing Decisions" Invited Speaker and advisor at the Abu Dhabi Environment Agency, United Arab Emirates (September 2011)
15. "Issues with Ozone Attainment Methodology for Houston, TX" Invited Speaker at North Carolina State Marine, Earth, & Atmospheric Sciences Seminar (August 2011).
14. "UAE Environmental Health Project Final Results" Invited Speaker and advisor at at the Abu Dhabi Environment Agency, United Arab Emirates (October 2010)
13. "Air quality modeling" Invited Speaker at the Clean Air Institute Workshop of Critical review of methodologies to assess greenhouse gas and local pollutant emission impacts of transport interventions for Bogota Columbia, Washington D.C., USA (September 2010).
12. "Modeling and Monitoring Outdoor Air Quality" Invited Speaker and advisor at the Abu Dhabi Environment Agency, Abu Dhabi, United Arab Emirates (May 2010)
11. "EPA Ozone Attainment Demonstration and Houston, TX" Invited Speaker at the Southeast Texas Photochemical Modeling Technical Committee meeting (April 2010).
10. "Assessment of the Attainment Guidance for 8-hr Ozone in Houston, TX" Invited Speaker at Center for Environmental and Energy Research at University of Texas-Austin (October 2009).
9. "Influence of Highly Variable Spatial and Temporal VOC Emissions in Houston Texas on 1-h and 8-h Ozone SIP Modeling" Invited Speaker at EPA Earth Day Seminar (April 2009).
8. "A Detailed Process Based Evaluation of Photochemical Air Quality Model Simulations of Houston, TX" Invited Speaker at NCAR ACD division seminar (June 2007).
7. "Investigation of Limited Radical Source Strength in the Houston Regulatory Ozone Model" Invited Speaker at TERC Science advisor committee (November 2006).
6. "Analysis of Houston's 2000 CAMx SIP Model: Radical sensitivity" Invited Speaker at Rapid Science Synthesis Group workshop (October 2006).
5. "A Process Based Method for Understanding Model Predictions" Invited Speaker at U.S. EPA Seminar, RTP, NC (May 2006).
4. "Houston Galveston Beaumont SIP-Relevant Research" Invited Speaker at TERC Science advisory committee, Houston, TX (April 2006).
3. "Simulating our Atmosphere: Challenges and Opportunities" Invited Speaker at UNC-Chapel Hill Seminar, Chapel Hill, NC (February 2006).

2. "Houston Galveston Beaumont Problem Statement" Invited Speaker at TERC Science advisory committee, Houston, TX (November 2005).
1. "How Should We Design the TexAQS II-2006 Intensive" Invited Speaker at TERC Science advisory committee, Houston, TX (November 2005).

### **Refereed other products of scholarship**

64. "The predicted impact of VOC emissions from Marijuana cultivation operations on ozone concentrations in Denver, CO." Wang C., Wiedinmyer C., Vizuite W., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2016).
63. "Does the atmosphere make pollution more deadly?" Invited Keynote Speaker, Congreso Anual de Meteorologia y Calidad del Aire Conference, Quito, Ecuador (April 2016)
62. "Impacts of Heterogeneous HONO Formation on Radical Sources and Ozone Chemistry in Houston, Texas" Vizuite W., Couzo E., Lefer B., Stutz J., Yarwood G., Karamchandani P., Henderson B., presented at the American Meteorological Society Annual Conference on Atmospheric Chemistry New Orleans, LA (January 2016)
61. "Impact of Heterogeneous HONO formation on Radical Sources and Ozone Chemistry in Houston, Texas" Vizuite W, Lefer B., Karamchandani P., Emery C., Stutz J., Couzo E., Yarwood G., presented at the International Aerosol Modeling Algorithms Conference, Davis, CA, USA (December 2015).
60. "Evaluation of aromatic chemical mechanisms" Parikh H.M, Carlton A.G, Zhang H, Zhou Y, Chen E.H, Kamens R.M ,Vizuite W presented at the International Aerosol Modeling Algorithms Conference, Davis, CA, (December 2015).
59. "The predicted impact of increased formaldehyde emissions from industrial flares on ozone concentrations in Houston, TX." Wang C.T., Vizuite W., presented at the American Geophysical Union Fall Meeting. (December 2015).
58. "A Novel Approach of Understanding and Incorporating Error of Chemical Transport Models into a Geostatistical Framework" Reyes J., Vizuite W., Serre M., presented at the American Geophysical Union Fall Meeting. (December 2015).
57. "The predicted impact of increased formaldehyde emissions from industrial flares on ozone concentrations in Houston, TX." Wang C., Chen Y., Johansson J., McNally D., Vizuite W., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2015)
56. "A Novel Approach to Characterizing Regionalized PM2.5 Community Multi-scale Air Quality Model Performance" Reyes J., Serre M., Vizuite W., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2015)
55. "Bayesian Maximum Entropy Integration of Ozone Observations and Model Predictions at Multiple Time Scales" Xu Y., Vizuite W., Serre M., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2015)

54. "Evaluation of Aromatic Oxidation Reactions in Seven Chemical Mechanisms with an Outdoor Chamber " Vizuete W., Parikh H., Jeffries H., Sexton K., Luecken D., Kamens R., presented at the Atmospheric Chemical Mechanisms Conference, (December 2014)
53. "Heterogeneous HONO sources and ozone chemistry in Houston, Texas" W. Vizuete, E. Couzo, P. Karamchandani, G. Yarwood, J. Stutz, and B. Lefer presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2014).
52. "Integration of observation and air quality model data for improved exposure estimates" Xu Y., Vizuete W., Serre M., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2014).
51. "Modeled Trends in Impacts of Landing and Takeoff Aircraft Emissions on Surface Air-Quality in U.S for 2005, 2010 and 2018" Vennam L.P., Arunachalam S., Bowden J., Baek B.H., Omary M., Vizuete W., Olsen S., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2014).
50. "Dynamically controlling daily power plant emissions to avoid ozone exceedances by coordinating air quality forecasts with electricity dispatch models" Couzo E., McCann J., Johnson N., Barrows C., Blumsack S., Vizuete W., Baker K., West J., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2014).
49. "Connecting Fine-scale Air Quality Modeling of Traffic-Related Pollutants with EPA's EnviroAtlas" Chang S.Y., Arunachalam S., Naess B., Talgo K., Valencia A., Isakov V., Palma T., Jackson L., Breen M. presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2014).
48. "Assessment of Dust Emissions Model and PM10 in the United Arab Emirates during Dust Storms using the CMAQ-WRF Modeling System" Farooaqui M., West J., Shankar U., Sexton K., Adelman Z., Omary M., Xin A., Arunachalam S., Davis N., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2013).
47. "A Modeling Framework for Improved Characterization of Near-Road Air Quality at Fine Scales for Nationwide Exposure Assessment" Chang S.Y., Arunachalam S., Naess B., Talgo K., Valencia A., Isakov V., Palma T., Jackson L., Breen M. presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2013).
46. "A Tracer Study to Assess Transport of Cruise Altitude Aircraft Emissions to the Surface at Continental and Hemispheric Scales" Vennam L.P., Arunachalam S., Bowden J., Baek B.H., Omary M., Vizuete W., Olsen S., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2013).
45. "Characterization of Air Quality Model Performance Using Land Use Regression Model" Xu Y., Vizuete W., Serre M., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2013).
44. "Development of an Aerosol Sampler for In Vitro Exposure Studies of Lung Tissue" Vizuete W., Zavalas J., Sexton K., Jaspers I., Jeffries H., presented at International Conference of Environment and Health Basel, Switzerland (August 2013)
43. "Adjusting electricity generation to avoid exceedances of the ozone air quality standard" McCann J., Vizuete W., West J.J., Blumsack S.A., presented at the Air and Waste Management Association Annual Conference and Exhibition. (June 2013)

42. "Houston's unusually large hourly ozone increases: Preconditions and geographical origins" Couzo E., Jeffries H.E., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2012).
41. "Assessment of a regulatory model performance relative to large spatial inhomogeneity in observed ozone in Houston, TX" Couzo, E., Jeffries, H.E., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2011).
40. "Sensitivity of intercontinental influence on ozone to chemical sinks of NO<sub>x</sub>" Henderson H., Pinder R., West J.J., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2011).
39. "A Combined Kinetic and Volatility Basis Set Approach to Model Secondary Organic Aerosol from Toluene and Diesel Exhaust/Meat Cooking Mixtures" Parikh H., Carlton A.G., Zhang H., Kamens R., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2011).
38. "New Algorithms to Describe Secondary Organic Aerosol Formation" Parikh H.M, Carlton A.G, Zhang H, Zhou Y, Chen E.H, Kamens R.M, Vizuete W presented at the 3rd International Aerosol Modeling Algorithms Conference, Davis, CA, (December 2011).
37. "The Implications of Uncertain NO<sub>2</sub> + OH for Ozone and Precursors" Henderson B.H., Pinder R.W., Akhtar F., Pye H., Vizuete W., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2011).
36. "An Assessment of Aviation-related Hazardous Air Pollutants from a U.S. airport using CMAQ" Vennam, L.P., Vizuete W., Arunachalam S. presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2011).
35. "NO<sub>x</sub> Chemical Sinks in the Upper Troposphere." Henderson B.H., Pinder R., Crooks J., Cohen R., Goliff W., Stockwell W.R., Fahr A., Sarwar G., Hutzell B., Mathur R., Carlton A., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2010).
34. "Ozone sensitivity to industrial ethene emissions events in regulatory air quality modeling simulations for Houston, Texas" Couzo E., Olatosi A., Vizuete W., presented at the American Geophysical Union Fall Meeting. (December 2010).
33. "Evaluation of the Simulated Planetary Boundary Layer in Houston, Texas" Kolling J., Pleim J., Vizuete W., Jeffries H.E., presented at the American Geophysical Union Fall Meeting. (December 2010).
32. "Inter-mechanism Upper Tropospheric NO<sub>x</sub> Evaluation: Findings and Implications" Henderson B.H., Pinder R., Crooks J., Cohen R., Goliff W., Stockwell W.R., Fahr A., Sarwar G., Hutzell B., Mathur R., Carlton A., Vizuete W., presented at Atmospheric Chemical Mechanisms Conference (December 2010).
31. "An Inter-comparison of Chemical Mechanisms for Aromatic VOCs using Data From UNC Outdoor Chambers" Parikh H.M, Jeffries H.E, Sexton K.G, Kamens R.M, Vizuete W., presented at the International Conference on Atmospheric Chemical Mechanisms, Davis, CA, (December 2010).

30. "Importance of Aqueous-phase Secondary Organic Aerosol Formation from Aromatics in an Atmospheric Hydrocarbon Mixture" Parikh H.M, Carlton A.G, Vizuete W, Zhang H, Zhou Y, Chen E.H, Kamens R.M., presented at the 2010 American Geophysical Union Fall Meeting, San Francisco, CA, (December 2010).
29. "An Improved Mechanism to Predict Secondary Organic Aerosols from Toluene" Parikh H.M, Carlton A.G, Vizuete W, Chen E.H, Kamens R.M., presented at the American Association for Aerosol Research 29th Annual Conference, Portland, OR, (October 2010).
28. "Evaluation of the simulated planetary boundary layer in eastern Texas," Kolling J., Pleim J., Jeffries H., Vizuete W., presented at the 9th Annual Community Modeling and Analysis System (CMAS) Conference, (October 2010).
27. "The Implications of Acetone Condensation on Remote Conditions," Henderson B. H., Mathur R., Vizuete W., presented at the 9th Annual Community Modeling and Analysis System (CMAS) Conference, (October 2010).
26. "Windblown Dust and Air Quality of the United Arab Emirates Based on Observations from Multiple Satellites and WRF Model Simulations" Kunhikrishnan T., Davis N., Xiu A., Adelman Z., Vizuete W., West J., presented at the International Symposium on Computational Wind Engineering (May 2010).
25. "Comparison of the ACM2 vertical mixing scheme with observations taken during the TexAQS II field study," Kolling J. S., Pleim J. E., Jeffries H., Vizuete W., presented at the 90th Annual Meeting of the American Meteorological Society, (January 2010).
24. "Investigation of morning PBL rise and impact on ozone production in regulatory simulations used in the Houston, TX SIP." Vizuete W., Valencia A., Jeffries H., Henderson B., Parikh H., Presented at the 12th Conference on Atmospheric Chemistry, Atlanta, GA: American Meteorological Society (January 2010).
23. "The Role of Chemistry in Upper Troposphere NO<sub>2</sub> Under-predictions" Henderson B., Pinder R., Goliff W., Stockwell W., Fahr A., Sarwar G., Hutzell B., Mathur R., Vizuete W., Cohen R., presented at the American Geophysical Union Fall Meeting, (December 2009).
22. "An Assessment of the Efficacy of VOC Cap and Trade in Houston" Couzo E., Jeffries H., Vizuete W., presented at the American Geophysical Union Fall Meeting, (December 2009).
21. "Observational analysis of high ozone plumes in Houston, TX from 2000-2008" Vizuete W., Couzo E., Jeffries H.E., Christoph E., presented at the American Geophysical Union Fall Meeting, (December 2009).
20. "The Role of Chemistry in Upper Troposphere NO<sub>2</sub> Under-predictions" Henderson B., Pinder R., Goliff W., Stockwell W., Fahr A., Sarwar G., Hutzell B., Mathur R., Vizuete W., Cohen R., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2009).
19. "Assessment of Dust Storms within UAE using Observational Data and CMAQ-WRF Modeling Framework" Farooqui Z., Parikh H., Vizuete W., Henderson B., Davis N., Shankar U., Arunachalam S., Jeffries H., West J., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2009).

18. "The Python Environment for Reaction Mechanism/Mathematics (PERM)." Henderson B. H., Vizuete W. G., Jeffries H. E., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2009).
17. "Visualization of 3-dimensional Model Mixing Volume Heights for CMAQ and CAMx" Parikh H., Henderson B., Vizuete W., Jeffries H., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2008).
16. "Process Analysis Techniques to investigate ozone production in regulatory simulations of Houston, TX." Vizuete W., Valencia A., Henderson B. H., Jeffries H. presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2008).
15. "The Influence of Model Resolution on Ozone Chemistry in Industrial VOC Releases" Vizuete W., Henderson B., Tesche T., presented at the American Meteorological Society 10<sup>th</sup> Conference on Atmospheric Chemistry, (January 2008).
14. "Emission Event Investigation With a Detailed Plume Tracking Process Analysis Tool" Vizuete W., Henderson B., Jeffries H., Kim B.U., Air & Waste Management Associations 100th Annual Conference & Exhibition, Pittsburgh, PA (June 2007).
13. "A Detailed Process Based Evaluation of Photochemical Air Quality Model Simulations of Houston, TX" Vizuete W., Jeffries H., Kioumourtoglou M., presented at American Geophysical Union Fall Meeting (December 2006).
12. "Process Analysis for Photochemical Reaction Mechanisms" Vizuete W., Jeffries H., presented at International Conference on Atmospheric Chemical Mechanisms (December 2006).
11. "A Holistic Evaluation of the Houston, Texas Ozone Attainment Episode" Biton L., Vizuete W., Kim B.U., Jeffries H.E., American Geophysical Union Fall Meeting San Francisco, CA (December 2006).
10. "Emission Event Investigation: Quantifying Impacts with a Detailed Plume Tracking Process Analysis Tool" Henderson B., Kioumourtoglou M.A., Kim B.U., Vizuete W., American Geophysical Union Fall Meeting, San Francisco, CA (December 2006).
9. "Feature Tracking Process Analysis" Henderson B.H., Vizuete W., Jeffries H.E., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2006).
8. "Development, implementation, and application of an improved model performance evaluation and diagnostics approach" Kim B.U., Vizuete W., Jeffries H.E., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2006).
7. "Process Analysis Application: The 2000 Houston Ozone Attainment Simulations" Kioumourtoglou M., Vizuete W., Jeffries H., Henderson B., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2006).
6. "Feature Tracking Process Analysis" Henderson B., Vizuete W., Jeffries H., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2006).
5. "Development, Implementation, and Application of an Improved Model Performance Evaluation and Diagnostics Approach" Kim B., Vizuete W., Jeffries H., presented at the Annual Community Modeling and Analysis System (CMAS) Conference, (October 2006).

4. "Comparison of CAMx and CMAQ Simulations of Houston, TX" Vizquete W., Kim B., Biton L., presented at Air & Waste Management Association's Annual Conference (June 2006).
3. "Application of Process Analysis for Evaluating Biogenic Emission Inventories" Vizquete W., McDonald-Buller E., Song J., Chang S., Kimura Y., Allen D., presented at Air & Waste Management Association's Annual Conference, Minneapolis, MN (June 2005).
2. "The Development of a Stochastic Emissions Inventory for Industrial Emissions in Houston/Galveston Texas and Its Use in Photochemical Modeling" Vizquete W., Allen D., Murphy C., Kimura Y., Jeffries H., Kim B., Webster M., Symens M., presented at the Air & Waste Management Association Annual Meeting, Minneapolis, MN (June 2005).
1. "Wildfires in Eastern Texas in August and September 2000: Emissions, Aircraft Measurements and Impact on Chemical and Physical Processes" Vizquete W., McDonald-Buller E., Song J., Chang S., Kimura Y., Allen D., presented at the 2005 American Association for Aerosol Research Particulate Matter Supersites Program & Related Studies conference, Atlanta, GA (February 2005).

#### **Non-refereed papers/articles**

5. Vizquete, W., Jeffries, H., Valencia, A., Couzo, E., Christoph, E., Wilkinson, J., Henderson, B., Parikh, H., Kolling, J., "HARC Project H97 Final Report " Houston Advanced Research Center, 2009.
4. Olague, E.J., Byun, D. W., Lefer, B., Rappenglueck, B., Nielsen-Gammon, J., Jeffries, H., Vizquete, W., Gillani, N., "The 2009 TERC Science Synthesis." Texas Environmental Research Consortium, 2009.
3. Vizquete, W., Jeffries, H., Christoph, E., Henderson, B., Parikh, H., Valencia, A., "Multi-resolution simulation and analysis of TexAQS II Air Pollution Events Project H87" Houston Advanced Research Center, 2008.
2. Cowling, E., Furiness, C., Dimitriades, B., Parrish, D., Editors, "Final Rapid Science Synthesis Report: Findings from the Second Texas Air Quality Study (TexAQS II)" TCEQ Contract Number 582-4-65614, 2007.
1. Vizquete, W., Jeffries, H., Biton, L., Henderson, B., Kioumourtzoglou, M., "Regional Transport Modeling for East Texas Project H60" Houston Advanced Research Center, 2006.



## Teaching Record (Since 2013)

Summer 2017

Atmospheric Aerosols and Climate taught at the Galapagos Islands (ENVR 296) Planned

Spring 2017

Modeling Atmospheric Chemistry Course Director (ENVR 773) Planned

Fall 2016

Elements of Chemical Reaction Engineering Course Director (ENVR 451) 9 Students

Fall 2015

Elements of Chemical Reaction Engineering Course Director (ENVR 451) 13 Students

Spring 2015

Modeling Atmospheric Chemistry Course Director (ENVR 773) 5 Students

Fall 2014

Elements of Chemical Reaction Engineering Course Director (ENVR 451) 15 Students

Fall 2013

Elements of Chemical Reaction Engineering Course Director (ENVR 451) 5 Students

Spring 2013

Modeling Atmospheric Chemistry Course Director (ENVR 773) 5 Students

## Names of Graduate Students Supervised

### *Undergraduate*

- |                                     |            |
|-------------------------------------|------------|
| 6. Emily Browning                   | since 2016 |
| 5. Riziq Fattah                     | since 2016 |
| 4. Jeliyah Clark UNC McNair Scholar | since 2016 |
| 3. Sara Farrell                     | 2015-2016  |
| 2. Madi Delaney Pfaff               | 2015-2016  |
| 1. Bonny Blackard                   | 2005-2007  |

### *Masters*

- |                      |                               |
|----------------------|-------------------------------|
| 25. Mutian Ma (M.S.) | since 2016 (Advisor)          |
| 24. Kevin Chu (M.S.) | since 2014 (Committee Member) |

23. Kesava Anirudh Vajjala (M.S.E.E.) 2015-2016 (Advisor)  
“Characterization of Ozone Emissions from Coal Fired Power Plants and their Impacts”
22. Yan Jin (M.S.E.E.) 2015-2016 (Advisor)  
“Mapping of county-level formaldehyde over North Carolina using Satellite Data”
21. Yuzhi Chen (M.S.E.E.) 2012-2014 (Advisor)  
“Assessment of SAPRC07 with updated isoprene oxidation chemistry against outdoor chamber experiments” Winner of UNC 2014 George C. Bunker Award
20. James McCann (M.S.E.E.) 2011-2013 (Advisor)  
“Model Sensitivity of Ozone to Electricity Generation Emissions in the Northeastern US”  
Winner of UNC 2014 George C. Bunker Award
19. Elizabeth Blayney (M.S.) 2010-2012 (Committee Member)  
“Premature Mortalities Attributable to Ozone and Fine Particulate Exposure: The Effect of Grid Size on Health Burden Estimates in the United States”
18. Christopher Werner (M.S.E.E.) 2010-2012 (Committee Member)  
“U.S. Air Quality Impacts of Nationwide Extension of the In-Use Off-road Diesel Vehicle Regulations Adopted by the California Environmental Protection Agency Air Resources Board (CARB)”
17. Evan Couzo (M.S.) 2009-2011 (Advisor)  
“High Ozone Events And Attainment Demonstrations In Houston, TX”
16. Jenna Kolling (M.S.) 2009-2011 (Advisor)  
“A Multisensor Evaluation of the Asymmetric Convective Model (version 2) in Eastern Texas”
15. Adey Olatosi (M.S.) 2009-2011 (Advisor)  
“Assessment of air quality model predictions of ozone concentrations characterized by large hourly changes in Houston, Texas.”
14. Yadong Xu (M.S.E.E.) 2009-2011 (Advisor)  
“Use of Process Analysis to Assess Predicted Ozone Formation in the United Arab Emirates”
13. Jeanette M. Reyes (M.S.) 2009-2011 (Committee Member)  
“Global Land Use Regression And Bayesian Maximum Entropy Spatiotemporal Estimation Of PM<sub>2.5</sub> Yearly Average Concentrations Across The United States”
12. Jyoti Bapat (M.S.) 2009-2011 (Committee Member)  
“The Generation Of An Experimental Database For Testing Predictive Models For  $\alpha$ -Pinene Gas And Particle Phase Reactions In The Atmosphere”
11. Matt Woody (M.S.) 2008-2010 (Committee Member)  
“An Investigation of the Impacts of Aviation Emissions on Current and Future Fine Particulate Matter in the U.S.”
10. Weruka Rattanavaraha (M.S.) 2008-2010 (Committee Member)  
“The Reactive Oxidant Potential Of Different Types Of Aged Atmospheric Particles: An Outdoor Chamber Study”

9. Julia Rager (M.S.) 2008-2010 (Committee Member)  
“A Systems Biology Approach to Investigate Human Lung Cell Response to Air Pollutants”
8. Nicholas DeFelice (M.S.E.E.) 2009-2010 (Committee Member)  
“How Water Subsidies Affect Air Quality In Abu Dhabi, United Arab Emirates”
7. Alejandro Valencia (M.S.E.E.) 2007-2009 (Advisor)  
“Assessment of the Relative Reduction Factor for an Ozone Attainment Demonstration in Houston, TX”
6. Elizabeth Christoph (M.S.) 2007-2009 (Advisor)  
“The Relationship between Rotational Wind Patterns and Ozone Exceedances in Houston, Texas”
5. Lars Perlmutter (M.S.) 2007-2009 (Committee Member)  
“Spectrophotometric Determination Of Carbonyls In Air And Biological Samples; A Faster, Cheaper Method To Quantify Total Carbonyls In A Sample”
4. Barron Henderson (M.S.) 2006-2008 (Advisor)  
“Air quality model resolution impacts odd oxygen and policy”  
Winner of 2009 UNC George C. Bunker Award
3. Leiran Biton (M.S.) 2005-2007 (Advisor)  
“Issues in the analysis of air quality modeling data in attainment demonstration of the 8-hr ozone standard”
2. Marianthi-Anna Kioumourtzoglou (M.S.P.H) 2005-2007 (Advisor)  
“Tropospheric Ozone: Health Effects, Control Strategies, Process Analysis and Source Apportionment”
1. Deb Medlin (M.S.) 2005-2006 (Committee Member)  
“Air Quality Policy Implications of the Highly Reactive Volatile Organic Compound Cap and Trade Program in the Houston Metropolitan Area”

***Doctoral (Ph.D.)***

29. Ryan Kingsbury since 2015 (Committee Member)
28. Hang Nguyen since 2014 (Advisor)
27. Tim Weigand since 2014 (Committee Member)
26. Annie Jarabek since 2014 (Advisor)
25. Ciao Kai Liang since 2014 (Committee Member)
24. Chitsan Wang since 2013 (Advisor)
23. Yuqiang Zhang since 2011 (Committee Member)
22. Zac Adelman since 2010 (Committee Member)
21. Uma Shankar since 2007 (Advisor)

20. Prahlad Jat 2009-2016 (Committee Member)  
 “Geostatistical Estimation of Water Quality Using River and Flow Covariance Models”
19. Pradeepa Vennam 2011-2016 (Advisor)  
 “Assessment of Aircraft Emissions Impacts on Air Quality at Multiple Model Scales”
18. Jeanette Reyes 2011-2016 (Committee Member)  
 “Geostatistical Data Fusion Estimation Methods of Ambient PM<sub>2.5</sub> and Polycyclic Aromatic Hydrocarbons”
17. Shih Ying Chang 2011-2016 (Advisor)  
 “High Resolution Air Quality Modeling for Improved Characterization of Exposures and Health Risk to Traffic-Related Air Pollutants (TRAPs) in Urban Area”
16. Yadong Xu 2011-2016 (Advisor)  
 “Bayesian Maximum Entropy Integration of Ozone Observations and Air Quality Model Predictions for Improved Exposure Estimates”
15. Amanda Dye 2011-2015 (Committee Member)  
 “Analysis of Two-Fluid-Phase Porous Medium Systems Using Microscale Experiments and Lattice Boltzmann Modeling”
14. Ted Mansfield 2012-2015 (Committee Member)  
 “Health Impacts of Transportation and the Built Environment: A Quantitative Risk Assessment”
13. Ben Allshouse 2004-2014 (Committee Member)  
 “Modern Space/Time Geostatistical Approaches to Mapping Point Sources of Pollution and Infectious Disease”
12. Evan Couzo 2011-2014 (Advisor)  
 “Air quality models and unusually large ozone increases: identifying model failures, understanding environmental causes, and improving modeled chemistry”
11. Charles Weir 2006-2013 (Advisor)  
 “Ambient air pollution, allergic sensitization, respiratory outcomes and symptoms: findings from the 2005-2006 national health and nutrition examination survey”
10. Meredith Fry 2009-2012 (Committee Member)  
 “The Impacts of Short-Lived Ozone Precursors on Climate and Air Quality”
9. Kim Lichtveld 2010-2012 (Committee Member)  
 “Using In Vitro Cultured Lung Cell Exposure Systems to Compare the Toxicity of Fresh and Aged Diesel Exhaust Utilizing an Outdoor Smog Chamber”
8. Alex Carll 2008-2012 (Committee Member)  
 “The Influence of Autonomic Imbalance on Diesel Exhaust-Induced Cardiac Dysfunction in Heart Failure-Prone Rats”
7. Haofei Zhang 2008-2012 (Committee Member)  
 “Characterization And Simulation Of Isoprene Photooxidation From Smog Chamber Studies”

6. Seth M. Ebersviller 2010-2012 (Committee Member)  
 “A Demonstration of Particle Uptake of Hazardous Air Pollutants in Urban Air Mixtures, and Its Effect on Toxicity to Cultured Human Epithelial Lung Cells”
5. Harshal Parikh 2007-2011 (Advisor)  
 “Evaluation of Parameterized SOA Formation Mechanisms for Aromatic Oxidation: Implications of Missing Processes, Gas/Particle Mass-Transfer Behavior and Reaction Pathways”
4. Barron Henderson 2008-2011 (Advisor)  
 “Biased Ozone Precursors in the Upper Troposphere: Evaluation, Recommendations, and Implications”
3. Susan Casper 2007-2011 (Committee Member)  
 “Using Atmospheric Models to Estimate Global Air Pollution Mortality”
2. Yasu Akita 2007-2010 (Committee Member)  
 “Spatial Statistics And Regression Analysis Of Environmental Exposure And Disease: From Air Pollution And Microbial Groundwater Contamination Assessment To Diarrhea Disease Mapping”
1. Christopher Wedding 2005-2008 (Committee Member)  
 “Understanding Sustainability in Real Estate: A Focus on Measuring and Communicating Success in Green Building”

***Post Doctoral***

3. Theran Riedel 2015-2016
2. Zuber Farooqi 2009-2011
1. Kunhikrishnan Thengumthara 2009-2010

**Contracts and Grants**

Title	Source	Period Start	Period End	Amount	Role
EPRI: Collaborative Research: Dynamic Management of Local Air Quality Through Wide-Area Power Grid Coordination	National Science Foundation	Jun 1, 2017	May 31, 2020	\$154,994	CO PI; PI Dr. Jason West (UNC)
NCAR Faculty Fellowship Program	National Center for Atmospheric Research	May 1, 2016	Aug 1, 2016	\$11,326	PI
Condensed Chemical Mechanisms for Ozone and Particulate Matter incorporating the latest in Isoprene chemistry	Texas Air Quality Research Program	Sep 27, 2016	Dec 31, 2017	\$225,000	PI
Quantifying risks from changing U.S. PM2.5 distributions due to climate variability and warming with large multi-model ensembles and high-resolution downscaling	Columbia University	Apr 1, 2016	Dec 31, 2016	\$98,389	CO PI; Dr. J.J. West (UNC)
Technical Support Ozone Attainment Modeling	Eight-Hour Ozone Coalition Group	Jan 1, 2015	Dec 1, 2016	\$100,000	PI
Update and evaluation of model algorithms needed to predict Particulate Matter from Isoprene	Texas Air Quality Research Program	May 28, 2014	Jun 30, 2015	\$200,000	PI
Generation of Exposed Lung Cells Tissues to Various Environmental Conditions	University of Texas-Austin	Feb 6, 2013	12/31/2016	\$14,751	CO PI; PI Dr. Jason Surratt (UNC)
Implementation and evaluation of new HONO mechanisms in a 3-D Chemical Transport Model for Spring 2009 in Houston	Texas Air Quality Research Program	Jan 29, 2013	Aug 30, 2013	\$117,000	PI
Analysis of Historical Ozone Trends in the Houston Region	Houston Advanced Research Center	Jan 16, 2013	Sep 30, 2015	\$290,496	PI
SBIR Phase 1: Novel atmospheric in vitro exposure device for chemical and toxicological monitoring of air quality	National Institute of Health	Nov 13, 2012	Oct 31, 2014	\$150,000	CO PI with PI Christopher Price (BioDeptronix LLC)
Dynamic Electricity Generation for Addressing Daily Air Quality Exceedances in the US	Environmental Protection Agency	Jun 1, 2012	Jul 1, 2014	\$250,000	COI; PI Dr. J.J. West (UNC)
Photochemically Aged Atmospheric Engineered Nanoparticles and Respiratory Toxicity	Center for Environmental Health Susceptibility	Apr 1, 2012	Mar 31, 2013	\$25,000	PI
Carolina Kickstart Award	NC TraCS Institute	Mar 1, 2012	Mar 1, 2013	\$45,000	PI
The use of a novel device for chemical and toxicological analysis of air	National Science Foundation	Jan 11, 2012	Mar 31, 2013	\$50,000	PI
Technical Support Ozone Attainment Modeling	Eight-Hour Ozone Coalition Group	Aug 1, 2011	Jun 1, 2012	\$50,000	PI
RO1: Environmental Determinants of Cognitive Aging in the Women's Health Initiative Memory Study	National Institute of Health	Jul 1, 2011	Aug 31, 2015	\$450,000	COI; PI Dr. JC Chen (USC)
Development of Isoprene Mechanism Components and Evaluation Against Smog Chamber Data	Environmental Protection Agency	Jun 1, 2011	May 31, 2012	\$80,000	PI
ViCTER R01: Bioengineering partnership to improve chemical hazard testing paradigms	National Institute of Health	Dec 1, 2010	Nov 1, 2012	\$119,500	COI; PI Dr. Ivan Rusyn (UNC)
Evaluation of CB05 Variants Against Smog Chamber Data	Environmental Protection Agency	Aug 1, 2010	May 31, 2011	\$75,000	PI
Quantification of Hydrocarbon, NOX, and SO2 emissions from Petrochemical Facilities in Houston: interpretation of the 2009 FLAIR dataset	Texas Commission on Environmental Quality	Aug 1, 2010	Aug 1, 2011	\$398,043	COI; PI Dr. Jochen Stutz (UCLA)
Technical Support Ozone Attainment Modeling	Eight-Hour Ozone Coalition Group	Jul 1, 2010	Aug 1, 2011	\$50,000	PI

Title	Source	Period Start	Period End	Amount	Role
Analysis of the Co-benefits of Greenhouse Gas Abatement for Global and US Air Quality under Future Climate Scenarios	Environmental Protection Agency	Apr 1, 2009	Mar 31, 2013	\$300,000	COI; PI Dr. J.J. West (UNC)
New methods to explain origins of air pollution health effects and plan remediation	Gillings Innovation Lab	Jul 1, 2008	Jul 1, 2010	\$300,000	PI
Development and Application of a Lagrangian Process Analysis Module in CAMx	The Texas Air Research Center (TARC)	Jul 1, 2008	Aug 30, 2009	\$13,795	COI; PI Dr. David Allen (UT-Austin)
Student services contract Mechanism Development	Environmental Protection Agency	Jun 1, 2008	Jun 1, 2009	\$25,000	PI
Research Participation Program EPA Oak Ridge Institute for Science and Education	Environmental Protection Agency	Jun 1, 2008	Sep 1, 2011	\$150,000	PI
Multi-model, Multi-episode Process Analysis to Investigate Ozone formation in Houston, TX (H97)	Texas Environmental Research Consortium	Jun 1, 2008	Oct 1, 2009	\$300,000	PI
National Strategy for Environment and Health United Arab Emirates	Environmental Agency Abu Dhabi	Jun 1, 2008	Dec 1, 2009	\$5,500,000	COI; PI Dr. Jacqueline Macdonald-Gibson (UNC)
Review of UAE Air Quality Monitoring Programs	Environmental Agency Abu Dhabi	Jun 1, 2008	Jun 1, 2010	\$1,600,000	CO-PI with Dr. J.J. West (UNC)
Improving an Air Quality Decision Support System through the Integration of Satellite Data with Ground-based, Modeled, and Emissions Data	National Aeronautics and Space Administration	Jan 1, 2008	Dec 31, 2010	\$330,000	COI; PI Uma Shankar (UNC Institute for the Environment)
Atmospheric Research	ExxonMobil Foundation	Oct 1, 2007	Aug 1, 2008	\$25,000	PI
Atmospheric Research	ExxonMobil Foundation	Aug 1, 2007	Aug 1, 2008	\$100,000	PI
Technical Support Ozone Attainment Modeling	Louisiana Chemical Association	Jun 1, 2007	Jun 1, 2008	\$50,000	PI
NCAR Faculty Fellowship Program	National Center for Atmospheric Research	May 1, 2007	Aug 1, 2007	\$28,964	PI
Multi-resolution Simulation and Analysis of TexAQS II Air Pollution (H87)	Texas Environmental Research Consortium	Apr 1, 2007	Jul 1, 2007	\$61,000	CO-PI with Dr. Harvey Jeffries (UNC)
Junior Faculty Award	UNC-CH	Jan 1, 2007	Dec 1, 2007	\$7,500	PI
Technical Support Ozone Attainment Modeling	Louisiana Chemical Association	Sep 1, 2006	Dec 1, 2006	\$35,000	COI; PI Dr. Harvey Jeffries (UNC)
Atmospheric Research	ExxonMobil Foundation	Aug 1, 2006	Aug 1, 2007	\$80,000	COI; PI Dr. Harvey Jeffries (UNC)
Ozone Formation Phenomena in the the Southeast Texas Airshed	UNC-CH	Dec 1, 2005	Nov 1, 2007	\$4,000	PI
Regional Transport Modeling for East Texas (H60)	Texas Environmental Research Consortium	Nov 1, 2005	Aug 1, 2006	\$85,000	PI
Technical Support Ozone Attainment Modeling	Eight-Hour Ozone Coalition Group	Jan 1, 2005	Dec 1, 2006	\$80,000	PI
			GRAND TOTAL	\$12,029,758	

PI=Principal Investigator

CO-PI= Co-Principal Investigator

COI=Co-Investigator

## Service

### Professional

#### *International*

5. Invited External Expert Asian Institute of Technology School of Environment, Resources and Development Khlong Nung, Thailand 2016-present
4. Invited expert evaluation of faculty candidates for Shanghai Jiao Tong University, China 2016
3. Invited member Qatar National Research Fund Review Panel 2015
2. Invited Ph.D. Thesis Evaluator Department of Environmental Sciences Fatima Jinnah Women University, Rawalpindi, Pakistan 2013
1. Invited Member Qatar National Research Fund Review Panel 2011

#### *National*

24. Invited Session Chair Community Modeling and Analysis System Annual Conference 2016
23. Invited review Panel NASA New Investigator Program Atmospheric Composition Panel 2015
22. Invited reviewer U.S. Army Research Office Core Programs 2015
21. Invited member National Center Atmospheric Research Atmospheric Chemistry Center for Observational Research and Data workshop 2015
20. Invited Member Scientific Interest Group for the Women's Health Initiative (WHI) Southeast Regional Center 2011-2015
19. Invited Member Independent Technical Advisory Committee, Texas Environmental Research Consortium Air Quality Research Program 2010-2015
18. Invited Member U.S. National Academy of Sciences Committee to Review National Science Foundations Atmospheric and Geospace Sciences Draft Science Goals and Objectives 2014
17. Invited Member Awards Committee of Air & Waste Management Association 2012
16. Invited Editorial Board of Dataset Papers in Atmospheric Sciences 2012
15. Invited Session Chair Community Modeling and Analysis System Annual Conference 2011
14. Invited Member National Science Foundation Graduate Fellowship Review Panel 2011
13. Invited Session Chair Community Modeling and Analysis System Annual Conference 2010
12. Member Environmental Protection Agency Human Exposure and Atmospheric Sciences Atmospheric Modeling and Analysis Division Chemistry Workgroup 2010
11. Invited Member National Science Foundation Graduate Fellowship Review Panel 2010
10. Invited Member Science Advisory Board, Houston Advance Research Center 2009-2010



9. Invited Member Environmental Protection Agency Review Panel Graduate Research Opportunities Fellowships 2009
8. Invited Member National Science Foundation Cyber-Enabled Discovery and Innovation Review Panel 2009
7. Invited Reviewer of Environmental Protection Agency Integrated Science Assessment for CO 2008
6. Invited Member American Geophysical Union Fall Meeting Planning Committee 2008
5. Invited Member Environmental Protection Agency Ozone NAAQS workshop 2008
4. Invited Member Environmental Protection Agency Review Panel Graduate Research Opportunities Fellowships 2008
3. Invited Member Environmental Protection Agency Review Panel Graduate Research Opportunities Fellowships 2007
2. Invited Member Environmental Protection Agency CMAQ Peer Review Panel 2006
1. Invited Member Environmental Protection Agency Modeling Guidance Workshop 2006

***University of North Carolina at Chapel Hill***

8. Mentor McNair Scholars Program designed to prepare undergraduate students for doctoral studies through involvement in research and other scholarly activities 2016-present
7. Advocate for Carolina First program dedicated to student success, appreciating the experiences of first-generation college students, and supporting students on their path to graduation 2016-present
6. Mentor Finish Line Project program that supports underrepresented UNC undergraduate men 2015-present
5. Mentor Carolina Millennial Scholars Program designed to promote academic and professional success for newly accepted Carolina males from diverse backgrounds 2012-present
4. Member School of Public Health 2020 Admission Practices Committee 2012-2013
3. Member School of Public Health 2020 Teaching and Learning Task Force 2011
2. Member School of Public Health Student Travel Fund Review Committee 2009-2012
1. Member School of Public Health Design Center Director Search Committee 2007

***Department of Environmental Sciences and Engineering***

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| 14. Director of the Master's of Science in Environmental Engineering | since 2016 |
| 13. Member Environmental Engineering Program Committee               | 2005-2016  |
| 12. Chair Business Manager Search Committee                          | 2015       |
| 11. Member Admissions Committee                                      | 2013-2015  |
| 10. Chair Master of Science Environmental Engineering Group          | 2012-2014  |
| 9. Mentor Junior Faculty Jason Surratt                               | since 2013 |
| 8. Chair Learning and Libations Committee                            | 2010-2011  |
| 7. Member Awards Committee   | since 2009 |
| 6. Member M.S. Curriculum Committee                                  | 2010       |
| 5. Member One Year Masters Exploratory Committee                     | 2010       |
| 4. Member Atmospheric Chemist Faculty Search Committee               | 2009       |
| 3. Chair Departmental Flyer Design Committee                         | 2007       |
| 2. Member Recruitment Committee                                      | 2006       |
| 1. Faculty advisor Environmental Student Organization                | since 2005 |

***Professional Journal and Book Reviews***

13. Advances in Meteorology
12. Atmospheric Environment
11. Atmospheric Chemistry and Physics
10. Engineering in Life Sciences
9. Environmental Pollution
8. Environmental Science & Technology
7. Geophysical Research Letter
6. Industrial & Engineering Chemistry Research
5. John Wiley & Sons Publisher Book review
4. Journal of the Air & Waste Management Association
3. Journal of Geophysical Research
2. Journal of Advanced Meteorology
1. Science of the Total Environment

## Faculty engagement

11. Invited expert to advise McDougle Middle School Science teachers to develop air pollution curriculum into 6th grade Atmosphere/Weather Science units 2016
10. Invited expert to advising Universidad de San Francisco de Quito on Air Quality Issues in Quito, Ecuador and the Galapagos Islands 2015-present
9. Member Search Committee for Executive Director of N.C. Scholars' Latino Initiative 2015
8. Invited expert to advising the Texas Commission of Environmental Quality on Houston Air Quality Issues 2014-present
7. Invited expert to advising business stakeholders in Houston, TX on Houston Air Quality Issues 2014-present
6. Volunteer for Project Uplift enables high-achieving rising seniors to experience college life 2014-present
5. Member of the Advisory Board and volunteer for N.C. Scholars' Latino Initiative program seeking to create pathways to educational, professional, and civic engagement opportunities for a new generation of Latinx leaders  
<http://ncsli.unc.edu> 2012-present
4. Invited expert by U.S. State Department advise on air quality and health in Asuncion, Paraguay 2011
3. Invited Member Clean Air Institute Air Quality Workshop for Bogota, Columbia 2010
2. Chair workshop to develop Field Campaigns for the United Arab Emirates 2010
1. Member National Children's Study North Carolina Scientific Domain Working Team 2008

## Media Interviews

8. National Public Radio
7. The Herald Sun
6. Red Guarani television morning Show Asuncion Paraguay
5. Triangle Business Journal
4. Chemical and Engineering News
3. Carolina Public Health Magazine
2. Endeavors Magazine
1. UNC Daily Tarheel