

## 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, <i>Cum Laude</i>	1998

## Professional Experience

Assistant Professor Department of Environmental Sciences & Engineering University of North Carolina - Chapel Hill	2005–Present
Founder, BioDepronix LLC	2011–present
Member, Women’s Health Initiative (WHI) Southeast Regional Center Scientific Interest Group	2011–present
Member, Texas Environmental Research Consortium Air Quality Research Program Independent Technical Advisory Committee	2010–present
Member, Houston Advance Research Center Science Advisory Board	2009-2010
Research Assistant - Ph.D. Candidate University of Texas - Austin Department of Chemical Engineering Research Advisor: <b>David T. Allen</b> Ph.D. Ph.D. Dissertation: <i>Implementation of Process Analysis in a Three-dimensional Air Quality Model</i>	2003–2005
Research Assistant - Masters Candidate University of Texas - Austin Department of Chemical Engineering Research Advisor: <b>David T. Allen</b> Ph.D.	2000–2003

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<sup>1</sup>Last revision: January 26, 2012

Process Engineer 1998–2000  
Exxonmobil, Baton Rouge, LA

## Honors and Awards

National Center of Atmospheric Research Visiting Professor Faculty Fellowship Program 2007  
Thrust - Uniden Endowed Graduate Fellowship in Engineering 2002–2005  
National Consortiums for Graduate Degrees for Minorities in Engineering and Science Fellowship  
2000–2002

## Memberships in Professional Societies

American Meteorological Society 2007–present  
American Geophysical Union 2005–present  
Association of Environmental Engineering and Science Professors 2005–present  
Air & Waste Management Association 2004–present  
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

## Publications

### Refereed articles (full listing)

Symbols denote:

#, a doctoral student supervised by Dr. Vizquete

&, a masters student supervised by Dr. Vizquete

\*, Dr. Vizquete serving as an equally contributing senior author

25. Haman C.L., Flynn J.H., Valencia A.&, Vizquete W., Lefer B.L., “Boundary Layer Height and Ground-Level Ozone Evolution in Houston, Texas” *in review Atmospheric Environment*, approx. 25 pp of manuscript (2012)
24. Kolling J.&, Pleim J.E., Jeffries H.E., Vizquete W., “A Multisensor Evaluation of the Asymmetric Convective Model, Version 2 in Southeast Texas” *in review Journal of the Air and Waste Management Association*, approx. 25 pp of manuscript (2012)
23. Lichtveld K., Ebersviller S.M., Sexton K.G., Vizquete W.\*, Jeffries H.E., Jaspers I., “Comparing a Novel in vitro exposure method - Electrostatic Aerosol In Vitro Exposure System (EAVES) - to a Resuspended Particulate Matter Exposure Technique” *in review Environmental Health Perspectives*, approx. 25 pp of manuscript (2012)

22. Parikh H.M.#, Vizuete W., Carlton A.G., Galloway K.E., Chen E. H., Kamens R. M., “A Combined Kinetic and Volatility Basis Set Approach to Model Organic Aerosol from Toluene and Diesel Exhaust/Meat Cooking Mixtures” *in review Environmental Science & Technology*, approx. 25 pp of manuscript (2012)
21. Parikh H. M.#, Carlton A.G., Zhou Y., Zhang H., Kamens R.M., Vizuete W., “Modeling Secondary Organic Aerosol from Aromatic Mixtures Using a Dynamic Partitioning Approach Incorporating Particle Aqueous-phase Chemistry (II)” *in review Atmospheric Environment*. approx. 25 pp of manuscript (2012)
20. Couzo E.#, Olatosi A.&, Jeffries H. E., Vizuete W., “Assessment of a Regulatory Model Performance Relative to Large Spatial Inhomogeneity in Observed Ozone in Houston, TX” *in press Journal of the Air and Waste Management Association*, approx. 25 pp of manuscript (2012)
19. Henderson B.H.#, Pinder R.W., Crooks J., Cohen R.C., Carlton A.G., Pye H.O.T., Vizuete 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 (2011)
18. Henderson B. H.#, Kimura Y., McDonald-Buller E., Allen D. T., Vizuete 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., Vizuete 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. Vizuete W., Jeffries H., Tesche TW, 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., Vizuete 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., Vizuete 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 (2010)

13. Henderson B.H.&, Vizquete 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. Vizquete 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., Vizquete 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. Vizquete 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., Vizquete 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., Vizquete 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., Vizquete 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., Vizquete 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., Vizquete 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., Vizquete 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. Vizueté 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. Vizueté 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., Vizueté 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)

#### **Refereed oral presentations (since 2005)**

"New Algorithms to Describe Secondary Organic Aerosol Formation" Parikh, H.M, Carlton, A.G, Zhang, H, Zhou, Y, Chen, E.H, Kamens, R.M, Vizueté, W\*, 3rd International Aerosol Modeling Algorithms Conference, Davis, CA, (December 2011).

"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.; Vizueté, W.\* presented at the American Geophysical Union Fall Meeting. (December 2010).

"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., Vizueté, W.\*, presented at Atmospheric Chemical Mechanisms Conference (December 2010).

"An Intercomparison of Chemical Mechanisms for Aromatic VOCs using Data From UNC Outdoor Chambers" Parikh, H.M, Jeffries, H.E, Sexton, K.G, Kamens, R.M, Vizueté, W.\* presented at the International Conference on Atmospheric Chemical Mechanisms, Davis, CA, (December 2010).

"Importance of Aqueous-phase Secondary Organic Aerosol Formation from Aromatics in an Atmospheric Hydrocarbon Mixture" Parikh, H.M, Carlton, A.G, Vizueté, 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).

"An Improved Mechanism to Predict Secondary Organic Aerosols from Toluene" Parikh, H.M, Carlton, A.G, Vizueté, W\*, Chen, E.H, Kamens, R.M. presented at the American Association for Aerosol Research 29th Annual Conference, Portland, OR, (October 2010).

"Evaluation of the simulated planetary boundary layer in eastern Texas," Kolling, J. S., J. E. Pleim, H. Jeffries, Vizueté W.\*, presented at the 9th Annual Community Modeling and Analysis System (CMAS) Conference, (October 2010).

“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).

“Comparison of the ACM2 vertical mixing scheme with observations taken during the TexAQS II field study,” Kolling, J. S. and J. E. Pleim, H. Jeffries, and W. Vizuete, presented at the 90th Annual Meeting of the American Meteorological Society, (January 2010).

“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).

“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 8th Annual CMAS Conference. (October 2009).

“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 8th Annual CMAS Conference. (October 2009).

“Visualization of 3-dimensional Model Mixing Volume Heights for CMAQ and CAMx” Parikh, H., Henderson, B., Vizuete, W.\*, Jeffries, H., presentation at the 7th Annual CMAS Conference (October 2008).

“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).

“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).

“A Detailed Process Based Evaluation of Photochemical Air Quality Model Simulations of Houston, TX” Vizuete W\*., Jeffries H., Kioumourtzoglou M., presented at American Geophysical Union Fall Meeting (December 2006).

“Process Analysis for Photochemical Reaction Mechanisms” Vizuete W.\*, Jeffries H., presented at International Conference on Atmospheric Chemical Mechanisms (December 2006).

“A Holistic Evaluation of the Houston, Texas Ozone Attainment Episode” Biton, L., Vizuete, W.\*, Kim, B.U., and Jeffries, H.E., American Geophysical Union Fall Meeting San Francisco, CA (December 2006).

“Emission Event Investigation: Quantifying Impacts with a Detailed Plume Tracking Process Analysis Tool” Henderson, B., Kioumourtzoglou, M.A., Kim, B.U., Vizuete, W.\*, American Geophysical Union Fall Meeting, San Francisco, CA (December 2006).

“Feature Tracking Process Analysis” Henderson, B.H., Vizuete, W.\*, Jeffries, H.E., presented at Annual CMAS Models-3 Users’ Conference. (October 2006).

“Development, implementation, and application of an improved model performance evaluation and diagnostics approach” Kim, B.U., Vizuete, W.\*, Jeffries, H.E., 5th Annual CMAS Conference, Chapel Hill, NC (October 2006).

“Process Analysis Application: The 2000 Houston Ozone Attainment Simulations” Kioumourtoglou M., Vizuete W.\*, Jeffries H., Henderson B., presented at Annual CMAS Models-3 Users’ Conference (October 2006).

“Feature Tracking Process Analysis” Henderson B., Vizuete W.\*, Jeffries H., presented at Annual CMAS Models-3 Users’ Conference (October 2006).

“Development, Implementation, and Application of an Improved Model Performance Evaluation and Diagnostics Approach” Kim B., Vizuete W., Jeffries H., presented at CMAS Annual Conference (October 2006).

“Comparison of CAMx and CMAQ Simulations of Houston, TX” Vizuete W.\*, Kim B., Biton L., presented at Air & Waste Management Association’s Annual Conference (June 2006).

“Application of Process Analysis for Evaluating Biogenic Emission Inventories” Vizuete 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).

“The Development of a Stochastic Emissions Inventory for Industrial Emissions in Houston/Galveston Texas and Its Use in Photochemical Modeling” Vizuete 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).

“Wildfires in Eastern Texas in August and September 2000: Emissions, Aircraft Measurements and Impact on Chemical and Physical Processes” Vizuete 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).

### **Invited Research and Educational Presentations (since 2005)**

“Outdoor Air Quality: Improving Understanding Informing Decisions” presented at the Abu Dhabi Environment Agency, United Arab Emirates (September 2011)

“Issues with Ozone Attainment Methodology for Houston, TX” presented at North Carolina State Marine, Earth, & Atmospheric Sciences Seminar (August 2011).

“Air Pollution: A global killer” Presented at Universidad Nacional de Asuncion, Paraguay (April 2011).

“Air Pollution: A global killer” Presented at Universidad Catolica Asuncion, Paraguay (April 2011).

“UAE Environmental Health Project Final Results” presented at at the Abu Dhabi Environment Agency, United Arab Emirates (October 2010)

“Air quality modeling” presented at the Clean Air Institute Workshop on Critical review of methodologies to assess greenhouse gas and local pollutant emission impacts of transport interventions, (September 2010).

“Modeling and Monitoring Outdoor Air Quality” at the Abu Dhabi Environment Agency, United Arab Emirates (May 2010)

“EPA Ozone Attainment Demonstration and Houston, TX” presented at the Southeast Texas Photochemical Modeling Technical Committee meeting (April 2010).

“Assessment of the Attainment Guidance for 8-hr Ozone in Houston, TX” presented at Center for Environmental and Energy Research at University of Texas-Austin (October 2009).

“Influence of Highly Variable Spatial and Temporal VOC Emissions in Houston Texas on 1-h and 8-h Ozone SIP Modeling” presented at EPA Earth Day Seminar (April 2009).

“A Detailed Process Based Evaluation of Photochemical Air Quality Model Simulations of Houston, TX” presented at NCAR ACD division seminar (June 2007).

“Investigation of Limited Radical Source Strength in the Houston Regulatory Ozone Model” presented at TERC Science advisor committee (November 2006).

“Analysis of Houston’s 2000 CAMx SIP Model: Radical sensitivity” presented at Rapid Science Synthesis Group workshop (October 2006).

“A Process Based Method for Understanding Model Predictions” presented at U.S. EPA Seminar, RTP, NC (May 2006).

“Houston Galveston Beaumont SIP-Relevant Research” presented at TERC Science advisory committee, Houston, TX (April 2006).

“Simulating our Atmosphere: Challenges and Opportunities” presented at UNC-Chapel Hill Seminar, Chapel Hill, NC (February 2006).

“Houston Galveston Beaumont Problem Statement” presented at TERC Science advisory committee, Houston, TX (November 2005).

“How Should We Design the TexAQS II-2006 Intensive” presented at TERC Science advisory committee, Houston, TX (November 2005).

### **Other unrefereed works**

Macdonald-Gibson, J. (editor), “National Strategy and Action Plan for Environmental Health United Arab Emirates” Environment Agency Abu Dhabi, United Arab Emirates, 2010.

Macdonald-Gibson, J. (editor), "The State of Environmental Health in the United Arab Emirates 2010" Environment Agency Abu Dhabi, United Arab Emirates, 2010.

Vizuete, 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.

Olaguer, E.J., Byun, D. W., Lefer, B., Rappenglueck, B., Nielsen-Gammon, J., Jeffries, H., Vizuete, W.\*, Gillani, N., "The 2009 TERC Science Synthesis." Texas Environmental Research Consortium, 2009.

Vizuete, 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.

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.

Vizuete, W.\*, Jeffries, H., Biton, L., Henderson, B., Kioumourtzoglou, M., "Regional Transport Modeling for East Texas Project H60" Houston Advanced Research Center, 2006.

## Teaching Activities

### Summary of Courses Taught (since 2005)

Fall 2011

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

Spring 2011

Modeling Atmospheric Chemistry Course Director (ENVR 890 section 4) 9 Students

Unifying Concepts Module Course Director (ENVR 401) 22 Students

Fall 2010

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

Spring 2010

Unifying Concepts Module Course Director (ENVR 401) 15 Students

Fall 2009

Process Dynamics in Environmental Systems Course Director (ENVR 451) 15 Students

Spring 2009

Modeling Atmospheric Chemistry Course Director (ENVR 890 section 4) 5 Students

Ozone Attainment Course Director (ENVR 890) 1 Student