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12 March 2019

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EDUCATION

2011 Ph.D. Chemical Engineering, Environmental Science and Engineering minor, California Institute of Technology, Pasadena, California
2007 M.S. Chemical Engineering, California Institute of Technology, Pasadena, California
2005 B.S. Chemical Engineering *summa cum laude*, University of Florida, Gainesville, Florida

PROFESSIONAL EXPERIENCE

2018-present Research Physical Scientist (GS-14) at the US Environmental Protection Agency, Research Triangle Park, North Carolina
2012-2018 Research Physical Scientist (GS-13) at the US Environmental Protection Agency, Research Triangle Park, North Carolina
2011-2012 Research Physical Scientist (GS-12) at the US Environmental Protection Agency, Research Triangle Park, North Carolina
2010-2011 ORISE Postdoctoral Research Scholar at the US Environmental Protection Agency, Research Triangle Park, North Carolina
2005-2010 Graduate Research Assistant, California Institute of Technology, Pasadena, California

PUBLICATIONS

Refereed Journal Articles

41 articles with over 1800 citations and an h-index of 22
(http://www.researcherid.com/rid/F-5392-2012)

[P]Postdoc advisee, [S]Student advisee/co-advisee, *Corresponding author

41. Zhao, Y.; Thornton, J.A.; **Pye, H.O.T.,** Quantitative constraints on autoxidation and dimer formation from direct probing of monoterpene-derived peroxy radical chemistry. *P Natl Acad Sci USA* **2018**, *115* (48), 12142-12147.

40. Liu, J.; Russell, L.M.; Ruggeri, G.; Takahama, S.; Claflin, M.S.; Ziemann, P.J; **Pye, H.O.T.**; Murphy, B.N.; Xu, L.; Ng., N.L.; McKinney, K.A.; Budisulistiorini, S.H.; Bertram, T.H.; Nenes, A.; Surratt, J.D., Regional similarities and NO_x-related increases in biogenic secondary organic aerosol in summertime southeastern U.S., *J Geophys Res Atmos* **2018**, *123* (8), 10620–10636.

39. Xu, L.; **Pye, H. O. T.**; He, J.; Chen, Y. L.; Murphy, B. N.; Ng, N. L., Experimental and model estimates of the contributions from biogenic monoterpenes and sesquiterpenes to secondary organic aerosol in the southeastern United States. *Atmos Chem Phy* **2018,** *18* (17), 12613-12637.

38. Carlton, A. G.; **Pye, H. O. T.**; Baker, K. R.; Hennigan, C. J., Additional benefits of federal air-quality rules: model estimates of controllable biogenic secondary organic aerosol. *Environ Sci Technol* **2018,** *52* (16), 9254-9265.

37. Zhang, H. F.; Yee, L. D.; Lee, B. H.; Curtis, M. P.; Worton, D. R.; Isaacman-VanWertz, G.; Offenberg, J. H.; Lewandowski, M.; Kleindienst, T. E.; Beaver, M. R.; Holder, A. L.; Lonneman, W. A.; Docherty, K. S.; Jaoui, M.; **Pye, H. O. T.**; Hu, W. W.; Day, D. A.; Campuzano-Jost, P.; Jimenez, J. L.; Guo, H. Y.; Weber, R. J.; de Gouw, J.; Koss, A. R.; Edgerton, E. S.; Brune, W.; Mohr, C.; Lopez-Hilfiker, F. D.; Lutz, A.; Kreisberg, N. M.; Spielman, S. R.; Hering, S. V.; Wilson, K. R.; Thornton, J. A.; Goldstein, A. H., Monoterpenes are the largest source of summertime organic aerosol in the southeastern United States. *P Natl Acad Sci USA* **2018,** *115* (9), 2038-2043.

36. **Pye,* H. O. T.**; Zuend, A.; Fry, J. L.; Isaacman-VanWertz, G.; Capps, S. L.; Appel, K. W.; Foroutan, H.; Xu, L.; Ng, N. L.; Goldstein, A. H., Coupling of organic and inorganic aerosol systems and the effect on gas-particle partitioning in the southeastern US. *Atmos Chem Phys* **2018,** *18* (1), 357-370.

35. Mao, J. Q.; Carlton, A.; Cohen, R. C.; Brune, W. H.; Brown, S. S.; Wolfe, G. M.; Jimenez, J. L.; **Pye, H. O. T.**; Ng, N. L.; Xu, L.; McNeill, V. F.; Tsigaridis, K.; McDonald, B. C.; Warneke, C.; Guenther, A.; Alvarado, M. J.; de Gouw, J.; Mickley, L. J.; Leibensperger, E. M.; Mathur, R.; Nolte, C. G.; Portmann, R. W.; Unger, N.; Tosca, M.; Horowitz, L. W., Southeast Atmosphere Studies: learning from model-observation syntheses. *Atmos Chem Phys* **2018,** *18* (4), 2615-2651.

34. **Pye,* H. O. T.**; Murphy, B. N.; Xu, L.; Ng, N. L.; Carlton, A. G.; Guo, H. Y.; Weber, R.; Vasilakos, P.; Appel, K. W.; Budisulistiorini, S. H.; Surratt, J. D.; Nenes, A.; Hu, W. W.; Jimenez, J. L.; Isaacman-VanWertz, G.; Misztal, P. K.; Goldstein, A. H., On the implications of aerosol liquid water and phase separation for organic aerosol mass. *Atmos Chem Phys* **2017,** *17* (1), 343-369.

33. Ng, N. L.; Brown, S. S.; Archibald, A. T.; Atlas, E.; Cohen, R. C.; Crowley, J. N.; Day, D. A.; Donahue, N. M.; Fry, J. L.; Fuchs, H.; Griffin, R. J.; Guzman, M. I.; Herrmann, H.; Hodzic, A.; Iinuma, Y.; Jimenez, J. L.; Kiendler-Scharr, A.; Lee, B. H.; Luecken, D. J.; Mao, J. Q.; McLaren, R.; Mutzel, A.; Osthoff, H. D.; Ouyang, B.; Picquet-Varrault, B.; Platt, U.; **Pye, H. O. T.**; Rudich, Y.; Schwantes, R. H.; Shiraiwa, M.; Stutz, J.; Thornton, J. A.; Tilgner, A.; Williams, B. J.; Zaveri, R. A., Nitrate radicals and biogenic volatile organic compounds: oxidation, mechanisms, and organic aerosol. *Atmos Chem Phys* **2017,** *17* (3), 2103-2162.

32. Murphy, B. N.; Woody, M. C.; Jimenez, J. L.; Carlton, A. M. G.; Hayes, P. L.; Liu, S.; Ng, N. L.; Russell, L. M.; Setyan, A.; Xu, L.; Young, J.; Zaveri, R. A.; Zhang, Q.; **Pye, H. O. T.**, Semivolatile POA and parameterized total combustion SOA in CMAQv5.2: impacts on source strength and partitioning. *Atmos Chem Phys* **2017,** *17* (18), 11107-11133.

31. Jathar, S. H.; Woody,[S,P] M.; **Pye, H. O. T.**; Baker, K. R.; Robinson, A. L., Chemical transport model simulations of organic aerosol in southern California: model evaluation and gasoline and diesel source contributions. *Atmos Chem Phys* **2017,** *17* (6), 4305-4318.

30. Fahey, K. M.; Carlton, A. G.; **Pye, H. O. T.**; Baek, J.; Hutzell, W. T.; Stanier, C. O.; Baker, K. R.; Appel, K. W.; Jaoui, M.; Offenberg, J. H., A framework for expanding aqueous chemistry in the Community Multiscale Air Quality (CMAQ) model version 5.1. *Geosci Model Dev* **2017,** *10* (4), 1587-1605.

29. Budisulistiorini,[S] S. H.; Nenes, A.; Carlton, A. G.; Surratt, J. D.; McNeill,* V. F.; **Pye,* H. O. T.**, Simulating aqueous-phase isoprene-epoxydiol (IEPOX) secondary organic aerosol production during the 2013 Southern Oxidant and Aerosol Study (SOAS). *Environ Sci Technol* **2017,** *51* (9), 5026-5034.

28. Appel, K. W.; Napelenok, S. L.; Foley, K. M.; **Pye, H. O. T.**; Hogrefe, C.; Luecken, D. J.; Bash, J. O.; Roselle, S. J.; Pleim, J. E.; Foroutan, H.; Hutzell, W. T.; Pouliot, G. A.; Sarwar, G.; Fahey, K. M.; Gantt, B.; Gilliam, R. C.; Heath, N. K.; Kang, D. W.; Mathur, R.; Schwede, D. B.; Spero, T. L.; Wong, D. C.; Young, J. O., Description and evaluation of the Community Multiscale Air Quality (CMAQ) modeling system version 5.1. *Geosci Model Dev* **2017,** *10* (4), 1703-1732.

27. Woody,[S,P] M. C.; Baker, K. R.; Hayes, P. L.; Jimenez, J. L.; Koo, B.; **Pye,* H. O. T.**, Understanding sources of organic aerosol during CalNex-2010 using the CMAQ-VBS. *Atmos Chem Phys* **2016,** *16* (6), 4081-4100.

26. Marais, E. A.; Jacob, D. J.; Jimenez, J. L.; Campuzano-Jost, P.; Day, D. A.; Hu, W.; Krechmer, J.; Zhu, L.; Kim, P. S.; Miller, C. C.; Fisher, J. A.; Travis, K.; Yu, K.; Hanisco, T. F.; Wolfe, G. M.; Arkinson, H. L.; **Pye, H. O. T.**; Froyd, K. D.; Liao, J.;

McNeill, V. F., Aqueous-phase mechanism for secondary organic aerosol formation from isoprene: application to the southeast United States and co-benefit of SO_2 emission controls. *Atmos Chem Phys* **2016,** *16* (3), 1603-1618.

25. Baker, K. R.; Woody, M. C.; Tonnesen, G. S.; Hutzell, W.; **Pye, H. O. T.**; Beaver, M. R.; Pouliot, G.; Pierce, T., Contribution of regional-scale fire events to ozone and $PM_{2.5}$ air quality estimated by photochemical modeling approaches. *Atmos Environ* **2016,** *140*, 539-554.

24. **Pye,* H. O. T.**; Luecken, D. J.; Xu, L.; Boyd, C. M.; Ng, N. L.; Baker, K. R.; Ayres, B. R.; Bash, J. O.; Baumann, K.; Carter, W. P. L.; Edgerton, E.; Fry, J. L.; Hutzell, W. T.; Schwede, D. B.; Shepson, P. B., Modeling the current and future roles of particulate organic nitrates in the southeastern United States. *Environ Sci Technol* **2015,** *49* (24), 14195-14203.

23. Gantt,[P] B.; Hoque,[P] S.; Fahey, K. M.; Willis, R. D.; Delgado-Saborit, J. M.; Harrison, R. M.; Zhang, K. M.; Jefferson, D. A.; Kalberer, M.; Bunker, K. L.; Conny, J. M.; Bhave, P. V.; Weinstein, J. P.; **Pye,* H. O. T.**, Factors affecting the ambient physicochemical properties of cerium-containing particles generated by nanoparticle diesel fuel additive use. *Aerosol Sci Technol* **2015,** *49* (6), 371-380.

22. Budisulistiorini,[S] S. H.; Li, X.; Bairai, S. T.; Renfro, J.; Liu, Y.; Liu, Y. J.; McKinney, K. A.; Martin, S. T.; McNeill, V. F.; **Pye, H. O. T.**; Nenes, A.; Neff, M. E.; Stone, E. A.; Mueller, S.; Knote, C.; Shaw, S. L.; Zhang, Z.; Gold, A.; Surratt,* J. D., Examining the effects of anthropogenic emissions on isoprene-derived secondary organic aerosol formation during the 2013 Southern Oxidant and Aerosol Study (SOAS) at the Look Rock, Tennessee ground site. *Atmos Chem Phys* **2015,** *15* (15), 8871-8888.

21. Baker, K. R.; Carlton, A. G.; Kleindienst, T. E.; Offenberg, J. H.; Beaver, M. R.; Gentner, D. R.; Goldstein, A. H.; Hayes, P. L.; Jimenez, J. L.; Gilman, J. B.; de Gouw, J. A.; Woody, M. C.; **Pye, H. O. T.**; Kelly, J. T.; Lewandowski, M.; Jaoui, M.; Stevens, P. S.; Brune, W. H.; Lin, Y. H.; Rubitschun, C. L.; Surratt, J. D., Gas and aerosol carbon in California: comparison of measurements and model predictions in Pasadena and Bakersfield. *Atmos Chem Phys* **2015,** *15* (9), 5243-5258.

20. Napelenok, S. L.; Simon, H.; Bhave, P. V.; **Pye, H. O. T.**; Pouliot, G. A.; Sheesley, R. J.; Schauer, J. J., Diagnostic air quality model evaluation of source-specific primary and secondary fine particulate carbon. *Environ Sci Technol* **2014,** *48* (1), 464-473.

19. Marais, E. A.; Jacob, D. J.; Guenther, A.; Chance, K.; Kurosu, T. P.; Murphy, J. G.; Reeves, C. E.; **Pye, H. O. T.**, Improved model of isoprene emissions in Africa using Ozone Monitoring Instrument (OMI) satellite observations of formaldehyde: implications for oxidants and particulate matter. *Atmos Chem Phys* **2014,** *14* (15), 7693-7703.

18. Karambelas, A.; **Pye, H. O. T.**; Budisulistiorini, S. H.; Surratt, J. D.; Pinder, R. W., Contribution of isoprene epoxydiol to urban organic aerosol: evidence from modeling and measurements. *Environ Sci Tech Let* **2014,** *1* (6), 278-283.

17. Jathar, S. H.; Gordon, T. D.; Hennigan, C. J.; **Pye, H. O. T.**; Pouliot, G.; Adams, P. J.; Donahue, N. M.; Robinson, A. L., Unspeciated organic emissions from combustion sources and their influence on the secondary organic aerosol budget in the United States. *P Natl Acad Sci USA* **2014,** *111* (29), 10473-10478.

16. Henderson, B. H.; Akhtar, F.; **Pye, H. O. T.**; Napelenok, S. L.; Hutzell, W. T., A database and tool for boundary conditions for regional air quality modeling: description and evaluation. *Geosci Model Dev* **2014,** *7* (1), 339-360.

15. Gantt,[P] B.; Hoque,[P] S.; Willis, R. D.; Fahey, K. M.; Delgado-Saborit, J. M.; Harrison, R. M.; Erdakos, G. B.; Bhave, P. V.; Zhang, K. M.; Kovalcik, K.; **Pye,* H. O. T.**, Near-road modeling and measurement of cerium-containing particles generated by nanoparticle diesel fuel additive use. *Environ Sci Technol* **2014,** *48* (18), 10607-10613.

14. **Pye,* H. O. T.**; Pinder, R. W.; Piletic, I. R.; Xie, Y.; Capps, S. L.; Lin, Y. H.; Surratt, J. D.; Zhang, Z. F.; Gold, A.; Luecken, D. J.; Hutzell, W. T.; Jaoui, M.; Offenberg, J. H.; Kleindienst, T. E.; Lewandowski, M.; Edney, E. O., Epoxide pathways improve model predictions of isoprene markers and reveal key role of acidity in aerosol formation. *Environ Sci Technol* **2013,** *47* (19), 11056-11064.

13. Lin, Y. H.; Zhang, H. F.; **Pye, H. O. T.**; Zhang, Z. F.; Marth, W. J.; Park, S.; Arashiro, M.; Cui, T. Q.; Budisulistiorini, H.; Sexton, K. G.; Vizuete, W.; Xie, Y.; Luecken, D. J.; Piletic, I. R.; Edney, E. O.; Bartolotti, L. J.; Gold, A.; Surratt, J. D., Epoxide as a precursor to secondary organic aerosol formation from isoprene photooxidation in the presence of nitrogen oxides. *P Natl Acad Sci USA* **2013,** *110* (17), 6718-6723.

12. Jiang, H.; Liao, H.; **Pye, H. O. T.**; Wu, S.; Mickley, L. J.; Seinfeld, J. H.; Zhang, X. Y., Projected effect of 2000-2050 changes in climate and emissions on aerosol levels in China and associated transboundary transport. *Atmos Chem Phys* **2013,** *13* (16), 7937-7960.

11. Appel, K. W.; Pouliot, G. A.; Simon, H.; Sarwar, G.; **Pye, H. O. T.**; Napelenok, S. L.; Akhtar, F.; Roselle, S. J., Evaluation of dust and trace metal estimates from the Community Multiscale Air Quality (CMAQ) model version 5.0. *Geosci Model Dev* **2013,** *6* (4), 883-899.

10. Tai, A. P. K.; Mickley, L. J.; Jacob, D. J.; Leibensperger, E. M.; Zhang, L.; Fisher, J. A.; **Pye, H. O. T.**, Meteorological modes of variability for fine particulate matter ($PM_{2.5}$) air

quality in the United States: implications for $PM_{2.5}$ sensitivity to climate change. *Atmos Chem Phys* **2012,** *12* (6), 3131-3145.

9. **Pye,* H. O. T.**; Pouliot, G. A., Modeling the role of alkanes, polycyclic aromatic hydrocarbons, and their oligomers in secondary organic aerosol formation. *Environ Sci Technol* **2012,** *46* (11), 6041-6047.

8. 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_2 reaction rate. *Atmos Chem Phys* **2012,** *12* (2), 653-667.

7. Heald, C. L.; Collett, J. L.; Lee, T.; Benedict, K. B.; Schwandner, F. M.; Li, Y.; Clarisse, L.; Hurtmans, D. R.; Van Damme, M.; Clerbaux, C.; Coheur, P. F.; Philip, S.; Martin, R. V.; **Pye, H. O. T.**, Atmospheric ammonia and particulate inorganic nitrogen over the United States. *Atmos Chem Phys* **2012,** *12* (21), 10295-10312.

6. Fisher, J. A.; Jacob, D. J.; Wang, Q. Q.; Bahreini, R.; Carouge, C. C.; Cubison, M. J.; Dibb, J. E.; Diehl, T.; Jimenez, J. L.; Leibensperger, E. M.; Lu, Z. F.; Meinders, M. B. J.; **Pye, H. O. T.**; Quinn, P. K.; Sharma, S.; Streets, D. G.; van Donkelaar, A.; Yantosca, R. M., Sources, distribution, and acidity of sulfate-ammonium aerosol in the Arctic in winter-spring. *Atmos Environ* **2011,** *45* (39), 7301-7318.

5. **Pye, H. O. T.**; Seinfeld, J. H., A global perspective on aerosol from low-volatility organic compounds. *Atmos Chem Phys* **2010,** *10* (9), 4377-4401.

4. **Pye, H. O. T.**; Chan, A. W. H.; Barkley, M. P.; Seinfeld, J. H., Global modeling of organic aerosol: the importance of reactive nitrogen (NO_x and NO_3). *Atmos Chem Phys* **2010,** *10* (22), 11261-11276.

3. **Pye, H. O. T.**; Liao, H.; Wu, S.; Mickley, L. J.; Jacob, D. J.; Henze, D. K.; Seinfeld, J. H., Effect of changes in climate and emissions on future sulfate-nitrate-ammonium aerosol levels in the United States. *J Geophys Res-Atmos* **2009,** *114*.

2. Ng, N. L.; Kwan, A. J.; Surratt, J. D.; Chan, A. W. H.; Chhabra, P. S.; Sorooshian, A.; **Pye, H. O. T.**; Crounse, J. D.; Wennberg, P. O.; Flagan, R. C.; Seinfeld, J. H., Secondary organic aerosol (SOA) formation from reaction of isoprene with nitrate radicals (NO_3). *Atmos Chem Phys* **2008,** *8* (14), 4117-4140.

1. Johanson, K.; Rabinovich, Y.; Moudgil, B.; Breece, K.; **Taylor, H.,** Relationship between particle scale capillary forces and bulk unconfined yield strength. *Powder Technol* **2003,** *138* (1), 13-17.

Manuscripts in Submission

Riva, M.; Chen, Y.; Zhang, Y.; Lei, Z.; Olson, N. E.; Boyer Chelmo, H. C.; Narayan, S.; Yee, L. D.; Green, H. S.; Cui, T.; Zhang, Z., Baumann, K.; Fort, M.; Edgerton, E.; Budisulistiorini, S. H.; Rose, C. A.; Ribeiro, I. O.; e Oliveira, R. L.; dos Santos, E. O.; Machado, C. M. D.; Szopa, S.; Zhao, Y.; Alves, E. G.; de Sá, S. S.; Hu, W.; Knipping, E. M.; Shaw, S. L.; Duvoisin Junior, S.; de Souza, R. A. F.; Palm, B. B.; Jimenez, J. L.; Glasius, M;. Goldstein, A. H.; **Pye, H. O. T.**; Gold, A.; Turpin, B. J.; Vizuete, W.; Martin, S. T.; Thornton, J. A.; Dutcher, C. S.; Ault, A. P.; Surratt, J. D., Increasing importance of organosulfur species for aerosol properties and future air quality, submitted.

Other Publications

Appel, W.; Napelenok, S.; Hogrefe, C.; Pouliot, G.; Foley, K.; Roselle, S.; Pleim, J.; Bash, J.; **Pye, H.**; Heath, N.; Murphy, B.; and Mathur, R, Overview and Evaluation of the Community Multiscale Air Quality (CMAQ) Modeling System Version 5.2. *Chapter 11, Air Pollution Modeling and its Application XXV*. Springer International Publishing AG, Cham (ZG), Switzerland, 2017, 69-73.

Mao, J.; Carlton, A.; Horowitz, L.; Cohen, R. C.; **Pye**, **H.;** Ng, S.; Trainer, M.; Mickley, L.; Leibensperger, E. M.; Mathur, R., Southeast Atmosphere Studies Workshop 2015, IGACnews 2015, *55,* 22-23.

HONORS AND AWARDS

2017 AGU Editor's Citation for Excellence in Refereeing *J. Geophys. Res.-Atmos.*
2017 Presidential Early Career Award for Scientists and Engineers (PECASE) 2014 ($100K)
2016 EPA Computational Exposure Division Best Publication Award for "Understanding sources of organic aerosol during CalNex-2010 using the CMAQ-VBS"
2015 EPA Scientific and Technological Achievement Award, Level III, for an assessment of health effects and air-quality modeling of nanoCerium-bearing diesel emissions
2014 Tier 3 Motor Vehicle Emissions and Fuel Standards Team EPA Gold Medal for Exceptional Service
2014 EPA Scientific and Technological Achievement Award, Level III, for insight into the mechanism by which isoprene produces particulate matter
2013 EPA Bronze Medal for Commendable Service, for exceptional leadership creating a cross-government field campaign investigating atmospheric organic aerosol air pollution, sources, formation, and transport in the southeastern United States
2013 EPA National Exposure Research Laboratory Early Career in Research Award
2013 EPA Atmospheric Modeling and Analysis Division Blue Ribbon Paper Award, for outstanding collaborative efforts to improve the characterization of organic aerosols
2011 EPA CMAQ Model team award, for exceptional/outstanding ORD technical assistance to the regions or program offices
2006 National Science Foundation Graduate Research Fellowship
2005 California Institute of Technology Corcoran Fellowship in Chemical Engineering,

2005 University of Florida Four-Year Scholar
2004 University of Florida Dow Outstanding Junior Award
2004 University of Florida College of Engineering Dean's Scholarship
2003 University of Florida Anderson Scholar, Highest Distinction
2003 University of Florida Presidential Recognition
2003 Tau Beta Pi Engineering Honor Society

INVITED TALKS

2018 Anthropogenic enhancements to production of highly oxygenated molecules from autoxidation, Telluride Science Research Center Workshop, Telluride, CO.
2017 Understanding pathways to organic aerosol: How the sweat and communications of plants influence our air quality, Earth & Ocean Sciences Seminar Series, Duke University, Durham, NC.
2017 What aerosol water do organic compounds see? AAAR Annual Meeting, Raleigh, NC.
2017 Using compound-specific models to understand particles in the atmosphere, Berkeley Atmospheric Sciences Center (BASC), Berkeley, CA.
2016 Lessons learned about organic aerosol formation in the southeast United States using observations and modeling, NCSU University Global Partnership Network (UGPN) Workshop on Air Quality, Climate, and Health, Raleigh, NC.
2016 Using SOAS & related field study data for scientific and regulatory modeling, EPA STAR Organic Aerosol Progress Review Meeting, Research Triangle Park, NC.
2015 SOA modeling for regulatory assessment: Motivation for mechanistic SOA, International Aerosol Modeling Algorithms (IAMA) Meeting, Davis, CA.
2015 Towards mechanistic representations of SOA from BVOC+NO_3 reactions, Workshop on nitrate radicals and biogenic volatile organic compounds (VOCs), Georgia Institute of Technology, Atlanta, GA, keynote speaker.
2015 SOA from BVOCs in the southeastern United States, Southeast Atmosphere Studies Workshop: Intensive Observation Period Modeling to Improve Mechanistic Representation of Trends, NOAA-GFDL, Princeton, NJ.
2015 The role of anthropogenic species in biogenic organic aerosol formation, Atmospheric Sciences Seminar Series, Harvard University, Cambridge, MA.
2014 Capturing interactions of the isoprene SOA system with NO_x and SO_x emissions, Telluride Workshop on Organic Aerosols, Telluride, CO.
2011 Secondary organic aerosol from low-volatility and traditional VOC precursors, University of North Carolina, Chapel Hill, NC.
2010 A global perspective on aerosol from primary semivolatile and intermediate volatility compounds, Environmental Protection Agency, Research Triangle Park, NC.
2008 Effect of changes in climate and emissions on future sulfate-nitrate-ammonium aerosols in the U.S., Aerosol/Cloud Seminar, NASA Jet Propulsion Laboratory, Pasadena, CA.

OTHER CONFERENCE AND MEETING PRESENTATIONS

2018 Anthropogenic enhancements to production of highly oxygenated molecules from autoxidation, AGU Fall Meeting, Washington D.C., talk.
2018 NO_x emission reduction co-benefits for secondary organic aerosol formation, CMAS Conference, Chapel Hill, NC, talk.
2017 A critical role for autoxidation in the α-pinene + OH aerosol system, International Aerosol Modeling Algorithms (IAMA) Conference, Davis, CA, poster.
2017 Using compound-specific models to understand particles in the atmosphere, Group on Atmospheric Science and Pollution (GASP), University of North Carolina at Chapel Hill, NC, talk.
2016 Updating CMAQ secondary organic aerosol properties relevant for aerosol water interactions, CMAS Conference, Chapel Hill, NC, talk.
2016 On the implications of aerosol liquid water and phase separation for organic aerosol mass, UNC Chapel Hill, Group on Atmospheric Science and Pollution, talk.
2016 On the implications of aerosol liquid water and phase separation for organic aerosol mass, Air & Waste Management Association Aerosol Optics Meeting, Jackson, WY, talk.
2016 Predicting SOA from organic nitrates in the southeastern United States, NASA Air Quality Applied Sciences Team (AQAST) 10th Semiannual Meeting, Research Triangle Park, poster.
2015 Predicting SOA from organic nitrates in the southeastern United States, AGU Fall Meeting, San Francisco, CA, poster.
2015 Role of organic nitrates in aerosol formation in the Southeastern US, University of North Carolina at Chapel Hill, talk.
2015 Aerosol from organic nitrogen in the Southeast United States, CMAS Conference, Chapel Hill, NC, talk.
2014 A significant source of isoprene aerosol controlled by acidity, Marine Earth and Atmospheric Sciences Department Seminar, North Carolina State University, Raleigh, NC, talk.
2013 A significant source of isoprene aerosol controlled by acidity, CMAS Conference, Chapel Hill, NC.
2013 A significant source of isoprene aerosol controlled by acidity, Group on Atmospheric Science and Pollution, University of North Carolina at Chapel Hill, talk.
2013 Examining the role of NO_x and acidity on organic aerosol formation through predictions of key isoprene aerosol species in the United States, Gordon Conference on Atmospheric Chemistry, West Dover, VT, poster.
2013 A significant source of isoprene aerosol controlled by acidity, University of Manchester, United Kingdom, talk.
2012 Potential role of isoprene epoxydiols in organic aerosol formation over the United States, CMAS Conference, Chapel Hill, NC, talk.
2012 Contribution of alkanes and polycyclic aromatic hydrocarbons to organic aerosol, AAAR Fall Meeting, Minneapolis, MN, poster.
2012 What enthalpy of vaporization should models use? Telluride Science Research Meeting: Organic Aerosols, Telluride, CO, talk.
2011 Contribution of alkanes and polycyclic aromatic hydrocarbons to organic aerosol, International Aerosol Modeling Algorithms Conference, Davis, CA, talk.
2011 Contribution of intermediate volatility alkanes and polycyclic aromatic hydrocarbons to organic aerosol, CMAS Conference, Chapel Hill, NC, poster.

2011 Ambient sampling for nanoparticle fuel additives in Newcastle, UK, US-UK Meeting on Exposure Science, Research Triangle Park, NC, talk.
2011 Organic aerosol from low-volatility and traditional precursors, ASCENT Workshop, Steamboat Springs, CO, poster.
2011 Secondary organic aerosol from low volatility and traditional VOC precursors, 5th International GEOS-Chem Meeting, Harvard University, Cambridge, MA, talk.
2011 Evaluation of CMAQ NO_2 Predictions over the US using ground-based and satellite observations, 5th International GEOS-Chem Meeting, Harvard University, Cambridge, MA, poster.
2010 NO_x dependent organic aerosol parameterizations, CMAS Conference, Chapel Hill, NC, talk.
2010 Organic aerosol from low-volatility and traditional precursors, STAR Meeting, Environmental Protection Agency, Research Triangle Park, NC, poster.
2010 A global perspective on aerosol from low-volatility organic compounds, Informal Symposium on Kinetic and Photochemical Processes in the Atmosphere, Scripps Institute of Oceanography, La Jolla, CA, poster.
2009 Effect of model parameters on predictions of organic aerosol, International Aerosol Modeling Algorithms Conference, Davis, CA, talk.
2009 Global simulation of aerosol from low volatility organic compounds, American Association for Aerosol Research Annual Conference, Minneapolis, MN, talk.
2009 Future inorganic aerosol levels, Fourth GEOS-Chem Scientific and Users' Meeting, Harvard University, talk.
2009 Future sulfate-nitrate-ammonium aerosol levels in the United States, 26th Informal Symposium on Kinetic and Photochemical Processes in the Atmosphere, University of California, Riverside, poster.
2008 Future sulfate-nitrate-ammonium aerosol levels in the United States, American Geophysical Union Fall Meeting, San Francisco, CA, poster.
2007 The effect of future climate change on aerosols: Biogenic SOA and inorganics, GCAP Phase II Meeting, Harvard University, talk.
2007 The effect of climate on secondary organic aerosols, Third GEOS-Chem Users' Meeting, Harvard University, talk.

TEACHING AND MENTORING EXPERIENCE

Researchers and Students Supervised at EPA

2018 Momei Qin (postdoc): investigating contribution of volatile chemical products to ambient air quality. Current postdoc.
2018 Masayuki Takeuchi (student): investigated autoxidation in the presence of elevated NO_x. Now a student at Georgia Tech.
2016 Azimeh Zare (postdoc): investigated aerosol pathways from organic nitrates. Now a researcher at the University of California at Berkeley.
2014 Matt Woody (student/postdoc): examined semivolatile emissions and intermediate volatility compounds in an anthropogenically dominated location. Now a staff scientist at EPA in Office of Air and Radiation.

2014 Sri Hapsari Budisulistiorini (student): examined factors controlling formation of isoprene-derived aerosol using models. Now a Research Fellow at the Earth Observatory of Singapore, Nanyang Technological University, Singapore.
2013 Brett Gantt (postdoc): conducted modeling of the effect of nano-Cerium fuel additives and analysis of ambient data. Now a staff scientist in EPA Office of Air and Radiation.
2012 Shamia Hoque (postdoc): conducted modeling of the effect of nano-Cerium fuel additives. Now an Assistant Professor in Civil and Environmental Engineering at the University of South Carolina.

Committees Served

2020 Yuzhi Chen, Ph.D., Environmental Sciences and Engineering, University of North Carolina
2018 Hang Nguyen M.S., Environmental Sciences and Engineering, University of North Carolina
2018 Mutian Ma, M.S., Environmental Sciences and Engineering, University of North Carolina
2014 Xinxin Li, M.S.P.H., Environmental Sciences and Engineering, University of North Carolina

Coursework

2018 Project Mentor for North Carolina State University Undergraduate Statistics Course
2011-2018 Invited Guest lecturer, Aerosol Physics and Chemistry, University of North Carolina
2016 Invited Guest lecturer, Advanced Air Quality, North Carolina State University
2008 Teaching assistant for Principles of Chemical Engineering, Caltech
2007 Teaching assistant for Undergraduate Thermodynamics II, Caltech
2005 Teaching assistant for Elements of Air Pollution, University of Florida

LEADERSHIP AND SERVICE AT EPA

2017-present Co-founder and co-lead of National Exposure Research Laboratory (NERL)-Air and Energy New Insights in Atmospheric Science seminar series
2016-present Co-lead of CMAQ Model Aerosol Workgroup
2011-present Participant in STEM Outreach
2017-2018 Member of the NERL Per- and Poly-Fluorinated Alkyl Substances (PFAS) Research Strategy planning team
2011-2018 Co-lead of Organic Aerosol Journal Club
2016-2017 CMAQ Website Subgroup lead responsible for facilitating content for the new CMAQ model web page and the development and synthesis of a survey of the CMAQ user community.
2017 Contributed text to Heavy-duty Greenhouse Gas Phase 2 Rule, Regulatory Impact Analysis Chapter 6: Health and Environmental Impacts.
2016 Contributed text to the Integrated Science Assessment for Oxides of Nitrogen - Health Criteria, EPA/600/R-15/068, January 2016.

2015	Invited panelist at the Workshop to Discuss Policy-Relevant Science to Inform EPA's Review of the Primary and Secondary NAAQS for PM in Research Triangle Park, Session 1a: Broad Scientific Issues of Atmospheric Science, Modeling, and Monitoring of PM.
2012-2014	Product lead for Chemical Safety and Sustainability project: Characterization of the size and mixing state of cerium-containing particles from fuel additives based on observations and modeling.
2012-2014	Co-lead of isoprene science group.
2012-2013	Member of the Science to Achieve Results (STAR) Anthropogenic Influences on Organic Aerosol Formation and Regional Climate Implications research funding opportunity EPA-G2012-STAR-D1/2 writing and preparation team and lead reviewer for 2 proposals on the EPA programmatic review.
2013	Contributed text to Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards Final Rule, Regulatory Impact Analysis Chapter 7: Impact of the Rule on Emissions and Air Quality, Section 7.2.3.2 Secondary Organic Aerosols (SOA), EPA-420-R-14-005, March 2014.
2012	Technical contact lead for a study to conduct ambient sampling for cerium in Newcastle-upon-Tyne, UK. Prioritized spending for an initial $250,000 budget that was increased to a total amount of $550,000 by the end of the project and supported visiting scientists, postdocs, and ambient sampling.
2011	Member of the cross-ORD interdisciplinary Chemical Safety and Sustainability Research Action Team for Nanomaterials tasked with formulating the first Chemical Safety for Sustainability Research Action Plan
2011	Contributed to NERL Annual Performance Measure: Model the Environmental Impacts of a Combusted Nanomaterial

LEADERSHIP AND SERVICE IN THE SCIENTIFIC COMMUNITY

2018-present	Topical editor for *Geoscientific Model Development* (5-year impact factor: 4.89)
2017	Member of organizing committee for Workshop on Long-term Measurements of Biosphere-Atmosphere Chemical Interactions, 13-14 November 2017, Beckman Center in Irvine, CA.
2017	Chair of the International Aerosol Modeling Algorithms (IAMA) Conference, 6-8 December 2017, Davis, CA.
2017	Co-organizer of Special Symposium on regional and global air quality and climate modeling at the 2017 American Association of Aerosol Research (AAAR) Annual Meeting, 16-20 October 2017, Raleigh, NC.
2016	Organizer of the Model Development session at the 2016 CMAS Conference
2011	Chair of Aerosol Sources and Chemistry session at 5th International GEOS-Chem Meeting, Harvard University, Cambridge.

Reviewer for funding agencies: National Oceanic and Atmospheric Administration (NOAA) Atmospheric Chemistry, Carbon Cycle, and Climate (AC4) Program, US National Science Foundation (NSF), Swiss National Science Foundation (SNSF), US Environmental Protection Agency (EPA).

Reviewer for scientific journals: *Atmospheric Environment, Atmospheric Chemistry and Physics, Journal of Geophysical Research-Atmospheres, Geoscientific Model Development, Environmental Science & Technology, Nature Geoscience, Geophysical Research Letters*.

APPOINTMENTS

2017-2022	Adjunct Associate Professor, Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill
2016-2020	Member of the Science Advisory Committee of the Air, Climate and Energy (ACE) Center at Harvard University and Massachusetts Institute of Technology.
Summer 2017	Visiting Scientist, Thornton Group, Department of Atmospheric Science, University of Washington, Seattle, Washington
2014-2018	Fixed-term appointee to the Graduate Faculty, Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

MODEL AND TOOL CONTRIBUTIONS

EPA Community Multiscale Air Quality (CMAQ) Model (https://www.epa.gov/cmaq)
v5.3, release expected 2019
v5.2.1, released March 2018
v5.2, released June 2017
v5.1, released 2015
v5.0.2, released 2014
v5.0, released 2012

GEOS-Chem Global Chemical Transport Model (http://acmg.seas.harvard.edu/geos/)
v9-02, released March 2014
v8-03-01, released May 2010

EPA SPECIATE Emission Speciation Database (https://cfpub.epa.gov/speciate/)
v5.0, release expected 2019
v4.5, released 2016
v4.4, released 2014

Washington Aerosol Module (WAM)
(https://www.atmos.washington.edu/~thornton/washington-aerosol-module)
13 August 2018 version