

# Jeffrey R. Pierce

Department of Atmospheric Science, ATS 220  
Colorado State University  
Fort Collins, CO 80523, USA  
970-491-8572  
jeffrey.pierce@colostate.edu

---

## Research Interests

Air pollution; environmental health, climate change; atmospheric particulate matter; aerosol-cloud interactions; global and regional atmospheric modeling; atmospheric chemistry and physics

## Education

**Carnegie Mellon University**, Ph.D., Chemical Engineering, 5/2008

Dissertation: Ultrafine atmospheric aerosols, clouds and climate

**Northeastern University**, B.S., Chemical Engineering, Summa Cum Laude, 6/2003

## Professional experience

**Colorado State University (7/2018-)**: Monfort Associate Professor of Atmospheric Science

**Colorado State University (7/2016-)**: Associate Professor of Atmospheric Science

**Colorado State University (1/2013-6/2016)**: Assistant Professor of Atmospheric Science

**Dalhousie University (1/2013-)**: Adjunct Professor of Physics and Atmospheric Science

**Dalhousie University (7/2009-12/2012)**: Assistant Professor of Physics and Atmospheric Science

**NASA Postdoctoral Program Fellow (7/2008-6/2009)**: Postdoctoral fellowship at NASA's Goddard Space Flight Center

**Northeastern University**, Boston, MA, Research Assistant, Interface Engineering Laboratory (2001-2002)

**C.S. Draper Laboratory**, Cambridge, MA, Test Engineer, Micro-Electro-Mechanical Systems (MEMS) Chem/Bio sensor project (2000-2001)

**Aspen Technology**, Cambridge, MA, Test Engineer, Chemical engineering software testing (1999)

## Honors and Awards

**Aerosol Science & Technology Outstanding Reviewer Award** (9/2018)

**CSU Atmospheric Science Outstanding Professor Award** (8/2018): Awarded by students for excellence in teaching

**Monfort Professor** (7/2018): Awarded to two mid-career professors at CSU each year

**George T. Abell Outstanding Mid-Career Faculty Award** (10/2017): Awarded by CSU College of Engineering

**Langstroth Memorial Teaching Excellence Award** (5/2012): Awarded by undergraduates in Dalhousie's Department of Physics and Atmospheric Science

**NASA Postdoctoral Program Fellowship** (7/2008): Postdoctoral fellowship at NASA's Goddard Space Flight Center

**Ken Meyer Award** (5/2008): Awarded to graduating Ph.D. student in Chemical Engineering at CMU with greatest impact of research

**Symposium Award** (10/2007): Award for outstanding research talk at Carnegie Mellon University Chemical Engineering Graduate Symposium  
**EPA STAR Fellowship** (2006-2008): Environmental Protection Agency's Science to Achieve Results (STAR) Graduate Fellowship  
**Robert Rothfus Fellowship** (2005-2006): Carnegie Mellon University Chemical Engineering department fellowship for outstanding coursework  
**National Science Foundation** (2004): Honorable mention, Graduate fellowship  
**William Cunningham Award** (11/2003): American Institute of Chemical Engineers' award for best senior design project  
**Ralph Buonopane Scholarship** (2002-2003): Northeastern University Chemical Engineering department award for excellence in coursework and hands-on projects  
**Department Outstanding Service Award** (2001): Northeastern University Chemical Engineering department award for extracurricular service in the department  
**Chemical Engineering Car Competition** (2001): Captain of Northeastern University's national competition runner-up Chem-E-Car  
**Undergraduate Honors Societies:** Tau Beta Pi (Engineering), Omega Chi Epsilon (Chemical Engineering), Phi Kappa Phi (General)

### Teaching Experience

**Assistant/Associate Professor**, Colorado State University:

Computational Methods in the Atmospheric Sciences (graduate)  
Air pollution (3<sup>rd</sup>-4<sup>th</sup> year undergraduate, 1<sup>st</sup> year graduate)  
Aerosol Physics, Chemistry, Clouds, and Climate (graduate)  
Science of Global Climate Change (undergraduate)

**Assistant Professor**, Dalhousie University:

Computational Methods in Physics (3<sup>rd</sup>-4<sup>th</sup> year undergraduate),  
Introduction to Atmospheric Science (3<sup>rd</sup>-4<sup>th</sup> year undergraduate, 1<sup>st</sup> year graduate),  
Physics and Chemistry of Aerosols and Clouds (graduate),  
Atmospheric Physics (3<sup>rd</sup>-4<sup>th</sup> year undergraduate, 1<sup>st</sup> year graduate)

**Guest Lecturer**, Carnegie Mellon: Air Quality Engineering, Fluid Dynamics

**Teaching Assistant**, Carnegie Mellon: Biotechnology and Environmental Processes, Senior Design and Optimization, Thermodynamics

### Peer Reviewed Journal Articles (advisees in *bold italics*)

(<http://www.researcherid.com/rid/E-4681-2013>)

1. *Anna Hodshire*, Brett Palm, Lizabeth Alexander, *Qijing Bian*, Pedro Campuzano-Jost, Eben Cross, Douglas Day, Suzane de Sa, Alex Guenther, Armin Hansel, James Huner, Werner Jud, Thomas Karl, Saewung Kim, Jesse Kroll, Jeong-Hoo Park, Zhe Peng, Roger Seco, James Smith, Jose Jimenez, and **Jeffrey Pierce**: Constraining nucleation, condensation, and chemistry in oxidation flow reactors using size-distribution measurements and aerosol microphysical modelling, *Atmos. Chem. Phys.*, 18, 12433-12460, <https://doi.org/10.5194/acp-18-12433-2018>, 2018.
2. *Bonne Ford*, Maria Val Martin, *Sarah E. Zelasky*, Emily V. Fischer, Susan C. Anenberg, Colette L. Heald, **Jeffrey R. Pierce**: Future Fire Impacts on Smoke Concentrations, Visibility, and Health in the Contiguous United States, *GeoHealth*, <https://doi.org/10.1029/2018GH000144>, 2018.

3. **Kodros, J. K.**, Hanna, S., Bertram, A., Leaitch, W. R., Schulz, H., Herber, A., Zanatta, M., Burkart, J., Willis, M., Abbatt, J. P. D., and **Pierce, J. R.**: Size-resolved mixing state of black carbon in the Canadian high Arctic and implications for simulated direct radiative effect, *Atmos. Chem. Phys.*, <https://doi.org/10.5194/acp-18-11345-2018>, 2018.
4. **J. K. Kodros**, E. Carter, M. Brauer, J. Volckens, K. R. Bilzback, C. L'Orange, M. Johnson, **J. R. Pierce**: Quantifying the contribution to uncertainty in mortality attributed to household, ambient, and joint exposure to PM<sub>2.5</sub> from residential solid-fuel use, *GeoHealth*, 2, <https://doi.org/10.1002/2017GH000115>, 2, <https://doi.org/10.1002/2017GH000115>, 2018.
5. Jacob R. Pratt, Ryan W. Gan, **Bonne Ford**, Steven Brey, **Jeffrey R. Pierce**, Emily V. Fischer, Sheryl Magzamen: A National Burden Assessment of Estimated Pediatric Asthma Emergency Department Visits that May be Attributed to Elevated Ozone Levels Associated with the Presence of Smoke, *Environmental Monitoring and Assessment*, in press, 2018.
6. Bilzback, Kelsey; L'Orange, Christian; Johnson, Michael; **Kodros, John**; Elienberg, Sarah; R, Subramanian; Lipsky, Eric; **Pierce, Jeffrey**; Robinson, Allen; Volckens, John: The Firepower Sweep Test: A Novel Approach to Cookstove Laboratory Testing, *Indoor Air*, <https://doi.org/10.1111/ina.12497>, 2018.
7. S. R. Eilenberg, Kelsey R. Bilzback, Michael Johnson, **John K. Kodros**, Eric M. Lipsky, Christian L'Orange, **Jeffrey R. Pierce**, R. Subramanian, John Volckens, Allen L. Robinson: Field Measurements of Solid-Fuel Cookstove Emissions from Uncontrolled Cooking in China, Honduras, Uganda, and India, *Atmospheric Environment*, <https://doi.org/10.1016/j.atmosenv.2018.06.041>, 2018.
8. Liji David, Akkihebbal Ravishankara, **John Kodros**, Chandra Venkataraman, Pankaj Sadavarte, **Jeffrey Pierce**, Sreelekha Chaliyakunnel, Dylan Millet: Aerosol optical depth over India, *Journal of Geophysical Research*, <https://doi.org/10.1002/2017JD027719>, 2018.
9. Chen, H., **Hodshire, A. L.**, Ortega, J., Greenberg, J., McMurry, P. H., Carlton, A. G., **Pierce, J. R.**, Hanson, D. R., and Smith, J. N. Vertically resolved concentration and liquid water content of atmospheric nanoparticles at the US DOE Southern Great Plains site, *Atmos. Chem. Phys.*, 18, 311-326, <https://doi.org/10.5194/acp-18-311-2018>, 2018.
10. Hughes, M., **Kodros, J. K.**, **J. R. Pierce**, West, M., Riemer, N.: Machine Learning to Predict the Global Distribution of Aerosol Mixing State Metrics, *Atmosphere*, 9(1), doi:10.3390/atmos9010015, 2018.
11. Vasilakos, P., Kim, Y. H., **Pierce, J. R.**, Yiaccoumi, S., Tsouris, C., and Nenes, A.: Studying the Impact of Radioactive Charging on the Microphysical Evolution and Transport of Radioactive Aerosols with the TOMAS-RC v1 framework, *Journal of Environmental Radioactivity*, 192, <https://doi.org/10.1016/j.jenvrad.2018.06.014>, 2018.
12. Michal Clavner, William R. Cotton, Susan C. van den Heever, **Jeffrey R. Pierce**, Steve M. Saleeby: The response of a simulated mesoscale convective system to increased aerosol pollution: Part I: Precipitation intensity, distribution, and efficiency., *Atmos. Res.*, <https://doi.org/10.1016/j.atmosres.2017.08.010>, 2018.
13. Ann Marie Carlton; Joost de Gouw; Jose L. Jimenez; Jesse L. Ambrose; Steven Brown; Kirk R. Baker; Charles A. Brock; Ronald C. Cohen; Sylvia Edgerton; Caroline Farkas; Daphne Farmer; Allen H. Goldstein; Lynne Gratz; Alex Guenther; Sherri Hunt; Lyatt Jaegle; Daniel A. Jaffe; John Mak; Crystal McClure; Anthanasios Nenes; Thien Khoi V.

Nguyen; **Jeffrey R. Pierce**; Noelle Selin; Viral Shah; Stephanie Shaw; Paul B. Shepson; Shaojie Song; Jochen Stutz; Jason Surratt; Barbara J. Turpin; Carsten Warneke; Rebecca A. Washenfelder; Paul O. Wennberg; Xianling Zhou: The Southeast Atmosphere Studies (SAS): coordinated investigation and discovery to answer critical questions about fundamental atmospheric processes, *Bull. Am. Met. Soc.*, <https://doi.org/10.1175/BAMS-D-16-0048.1>, 2018.

14. Julia Burkart, **Anna L. Hodshire**, Emma L. Mungall, **Jeffrey R. Pierce**, Luis A. Ladino, Alex K. Y. Lee, Victoria Irish, Jeremy J. B. Wentzell, John Liggio, Tim Papakyriakou, Jennifer Murphy, Jonathan Abbatt: Organic condensation and particle growth to CCN sizes in the summertime marine Arctic is driven by materials more semi-volatile than at continental sites, *Geophysical Research Letters*, doi:10.1002/2017GL075671, 2017.
15. Veljko Petkovic; Christian D. Kummerow; David L. Randel; **Jeffrey R. Pierce**; **John K. Kodros**: Improving the Quality of Extreme Precipitation Estimates from Satellite Passive Microwave Rainfall Retrievals, *J. Hydrometeorology*, <https://doi.org/10.1175/JHM-D-17-0069.1>, 2017.
16. **Pierce, J.R.**: Cosmic rays, aerosols, clouds, and climate: Recent findings from the CLOUD experiment, *J. Geophys. Res.*, 122, doi:10.1002/2017JD027475, 2017.
17. **Ford, B.**, Burke, M., **Lassman, W.**, Pfister, G., **Pierce, J.R.**: Status Update: Is smoke on your mind? Using social media to improve determine smoke exposure estimates, *Atmos. Chem. Phys.*, 17, 7541-7554, <https://doi.org/10.5194/acp-17-7541-2017>, 2017.
18. Gan, R.W., **Ford, B.**, **Lassman, W.**, Pfister, G., Vaidyanathan, A., Fischer, E.V., Volckens, J., **Pierce, J.R.**, Magzamen, S.: A comparison of smoke estimation methods and their association with wildfire smoke and cardiopulmonary-related hospital admissions during the 2012 Washington wildfires, *GeoHealth*, 1, doi:10.1002/2017GH000073, 2017.
19. **Lassman, W.**, **Ford, B.**, Gan, R.W., Pfister, G., Magzamen, S., Fischer, E.V., **Pierce, J.R.**: Spatial and Temporal Estimates of Population Exposure to Wildfire Smoke during the Washington State 2012 Wildfire Season Using Blended Model, Satellite, and In-Situ Data, *GeoHealth*, 1, doi:10.1002/2017GH000049, 2017.
20. **Kodros, J. K.**, **Pierce, J. R.**: Important global and regional differences in cloud-albedo aerosol indirect effect estimates between simulations with and without prognostic aerosol microphysics, *J. Geophys. Res.*, 122, doi:10.1002/2016JD025886, 2017.
21. **Bian, Q.**, Jathar, S. H., **Kodros, J. K.**, Barsanti, K. C., Hatch, L. E., May, A. A., Kreidenweis, S. M., and **Pierce, J. R.**: Secondary organic aerosol formation in biomass-burning plumes: Theoretical analysis of lab studies and ambient plumes, *Atmos. Chem. Phys.*, 17, 5459-5475, doi:10.5194/acp-2016-949, 2017.
22. Stolz, D.C., Rutledge, S.A., **Pierce, J. R.**, van den Heever, S.C.: A global lightning parameterization based on statistical relationships between environmental factors, aerosols, and convective clouds in the TRMM climatology, *J. Geophys. Res.*, 122, doi:10.1002/2016JD026220, 2017.
23. Stolz, D.C., Rutledge, S.A., Xu, W., **Pierce, J. R.**: Interactions between the MJO, aerosols, and convection over the central Indian Ocean, *J. Atmos. Sci.*, doi:10.1175/JAS-D-16-0054.1, 2017.
24. T. Nah, R. McVay, **Pierce, J. R.**, J. Seinfeld, and N. L. Ng: Constraining uncertainties in particle wall-deposition correction during SOA formation in chamber experiments, *Atmos. Chem. Phys.*, 17, 2297-2310, doi:10.5194/acp-17-2297-2017, 2017.
25. Manish Shrivastava, Christopher Cappa, Jiwen Fan, Allen Goldstein, Alex Guenther, Jose L. Jimenez, Chongai Kuang, Alexander Laskin, Scot Martin, Nga Lee Ng, Tuukka Petaja, **Jeffrey Pierce**, Philip Rasch, Pontus Roldin, John Seinfeld, John Shilling, James Smith, Joel Thornton, Rainer Volkamer, Jian Wang, Douglas Worsnop, Rahul Zaveri, Alla Zelenyuk, Qi Zhang: Recent advances in understanding secondary organic aerosols:

- implications for global climate forcing: *Rev. Geophys.*, 55, 509-559, doi:10.1002/2016RG000540, 2016.
26. Ghahremaninezhad, R., Norman, A.-L., **Croft, B.**, Martin, R. V., **Pierce, J. R.**, Burkart, J., Rempillo, O., Bozem, H., Kunkel, D., Thomas, J. L., Aliabadi, A. A., Wentworth, G. R., Levasseur, M., Staebler, R. M., Sharma, S., and Leaitch, R.: Vertical profile of atmospheric dimethyl sulfide in the Arctic Spring and Summer, *Atmos. Chem. Phys.*, 17, 8757-8770, <https://doi.org/10.5194/acp-17-8757-2017>, 2017.
  27. **Kodros, J. K.**, Weidinmyer, C., **Ford, B.**, **Cucinotta, R.**, Gan, R., Magzamen, S., **Pierce, J. R.**: Global burden of mortalities due to chronic exposure to ambient PM2.5 from open combustion of domestic waste, *Env. Res. Lett.*, 11 (12), 2016.
  28. **Croft, B.**, Wentworth, G. R., Martin, R. V., Leaitch, W. R., Murphy, J. G., Murphy, B. N., **Kodros, J.**, Abbatt, J. P. D., **Pierce, J. R.**: Contribution of Arctic seabird ammonia to atmospheric particles and cloud radiative effect, *Nature Communications*, doi:10.1038/ncomms13444, 2016.
  29. **Hodshire, A. L.**, Lawler, M. J., Zhao, J., Ortega, J., Jen, C., Yli-Juuti, T., Brewer, J. F., **Kodros, J. K.**, Barsanti, K. C., Hanson, D. R., McMurry, P. H., Smith, J. N., and **Pierce, J. R.**: Multiple new-particle growth pathways observed at the US DOE Southern Great Plains field site, *Atmos. Chem. Phys.*, 16, 9321-9348, doi:10.5194/acp-16-9321-2016, 2016.
  30. **Kodros, J. K.**, **Cucinotta, R.**, Ridley, D. A., Wiedinmyer, C., and **Pierce, J. R.**: The aerosol radiative effects of uncontrolled combustion of domestic waste, *Atmos. Chem. Phys.*, 16, 6771-6784, doi:10.5194/acp-16-6771-2016, 2016.
  31. **Croft, B.**, Martin, R. V., Leaitch, W. R., Tunved, P., Breider, T. J., **D'Andrea, S. D.**, **Pierce, J. R.**: Processes controlling the seasonal cycle of Arctic aerosol number and size distributions, *Atmos. Chem. Phys.*, 16, 3665-3682, doi:10.5194/acp-16-3665-2016, 2016.
  32. **D'Andrea, S.D.**, **Ng, J.Y.**, **Kodros, J.K.**, Atwood, S.A., Wheeler, M.J., Macdonald, A.M., Leaitch, W.R., **Pierce, J. R.**: Source Attribution of Aerosol Size Distributions and Model Evaluation Using Whistler Mountain Measurements and GEOS-Chem-TOMAS Simulations, *Atmos. Chem. Phys.*, 16, 383-396, doi:10.5194/acp-16-383-2016, 2016.
  33. **Sakamoto, K. M.**, Laing, J. R., **Stevens, R. G.**, Jaffe, D. A., and **Pierce, J. R.**: The evolution of biomass-burning aerosol size distributions due to coagulation: dependence on fire and meteorological details and parameterization, *Atmos. Chem. Phys.*, 16, 7709-7724, doi:10.5194/acp-16-7709-2016, 2016.
  34. Wentworth, G. R., Murphy, J. G., **Croft, B.**, Martin, R. V., **Pierce, J. R.**, Cote, J.-S., Courchesne, I., Tremblay, J.-E., Gagnon, J., Thomas, J. L., Sharma, S., Toom-Saunty, D., Chivulescu, A., Levasseur, M., and Abbatt, J. P. D.: Ammonia in the summertime Arctic marine boundary layer: Sources, Sinks and Implications, *Atmos. Chem. Phys.*, 16, 1937-1953, doi:10.5194/acp-16-1937-2016, 2016.
  35. **Gagne, S.**, **MacDonald, L.P.**, Leaitch, W.R., **Pierce, J.R.**: Software and database structure to analyze the relationship between aerosol, clouds and precipitation: SAMAC. *Atmos. Meas. Tech.*, 9, 619-630, doi:10.5194/amt-9-619-2016, 2016.
  36. Kristiansen, N. I., Stohl, A., Olivie, D. J. L., **Croft, B.**, Sovde, O. A., Klein, H., Christoudias, T., Kunkel, D., Leadbetter, S. J., Lee, Y. H., Zhang, K., Tsigaridis, K., Bergman, T., Evangelidou, N., Wang, H., Ma, P.-L., Easter, R. C., Rasch, P. J., Liu, X., Pitari, G., Di Genova, G., Zhao, S. Y., Balkanski, Y., Bauer, S. E., Faluvegi, G. S., Kokkola, H., Martin, R. V., **Pierce, J. R.**, Schulz, M., Shindell, D., Tost, H., and Zhang, H.: Evaluation of observed and modelled aerosol lifetimes using radioactive tracers of opportunity and an ensemble of 19 global models, *Atmos. Chem. Phys.*, 16, 3525-3561, doi:10.5194/acp-16-3525-2016, 2016.
  37. Schill, G.P., S. H. Jathar, **J. K. Kodros**, E. J. T. Levin, A. M. Galang, B. Friedman, M. F. Link, D. K. Farmer, **J. R. Pierce**, S. M. Kreidenweis, and P. J. DeMott: Ice nucleating

- particle emissions from photochemically-aged diesel and biodiesel exhaust, *Geophys. Res. Lett.*, 42, doi: 10.1002/2016GL069529, 2016.
38. **Bian, Q.**, May, A. A., Kreidenweis, S. M., **Pierce, J. R.**: Investigation of particle and vapor wall-loss effects on controlled wood-smoke smog-chamber experiments, *Atmos. Chem. Phys.*, 15, 11027-11045, doi:10.5194/acp-15-11027-2015, 2015.
  39. **Kodros, J. K.**, Scott, C. E., **Farina, S. C.**, Lee, Y. H., L'Orange, C., Volckens, J., **Pierce, J. R.**: Uncertainties in global aerosols and climate effects due to biofuel emissions, *Atmos. Chem. Phys.*, 15, 8577-8596, doi:10.5194/acp-15-8577-2015, 2015.
  40. Humphries, R. S., Schofield, R., Keywood, M., Ward, J., **Pierce, J. R.**, Gionfriddo, C. M., Tate, M., Krabbenhoft, D., Galbally, I. E., Molloy, S. B., Klekociuk, A., Johnston, P. V., Kreher, K., Thomas, A. J., Robinson, A. D., Harris, N. R. P., Johnson, R., and Wilson, S. R.: Boundary layer new particle formation over East Antarctic sea ice'' possible Hg driven nucleation?, *Atmos. Chem. Phys.*, 15, 13339-13364, doi:10.5194/acp-15-13339-2015, 2015.
  41. Scott, C. E., Spracklen, D. V., **Pierce, J. R.**, Riipinen, I., **D'Andrea, S. D.**, Rap, A., Carslaw, K. S., Forster, P. M., Kulmala, M., Mann, G. W., and Pringle, K. J.: Impact of gas-to-particle partitioning approaches on the simulated radiative effects of biogenic secondary organic aerosol, *Atmos. Chem. Phys.*, 15, 12989-13001, doi:10.5194/acp-15-12989-2015, 2015.
  42. Fuchs, B.R., S.A. Rutledge, E.C. Bruning, **J.R. Pierce, J.K. Kodros**, T.J. Lang, D. MacGorman, P. Krehbiel, W. Rison: Environmental controls on storm intensity and charge structures in multiple regions of the continental United States, *Journal of Geophysical Research*, 120, doi:10.1002/2015JD023271, 2015.
  43. Stolz, D.C., Rutledge, S.A., **Pierce, J.R.**: Simultaneous influences of thermodynamics and aerosols on deep convection and lightning in the tropics, *Journal of Geophysical Research*, 120, doi:10.1002/2014JD023033, 2015.
  44. **Pierce, J. R., Croft, B., Kodros, J. K., D'Andrea, S. D.**, Martin, R. V.: The importance of interstitial particle scavenging by cloud droplets in shaping the remote aerosol size distribution and global aerosol-climate effects, *Atmos. Chem. Phys.*, 15, 6147-6158, doi:10.5194/acp-15-6147-2015, 2015.
  45. **D'Andrea, S.D.**, Acosta Navarro, J.C., **Farina, S.C.**, Scott, C.E., Rap, A., Farmer, D.K., Spracklen, D.V., Riipinen, I., **Pierce, J.R.**: Aerosol size distribution and radiative forcing response to anthropogenically driven historical changes in biogenic secondary organic aerosol formation, *Atmos. Chem. Phys.*, 15, 2247-2268, doi:10.5194/acp-15-2247-2015, 2015.
  46. **Sakamoto, K. M.**, Allan, J. D., Coe, H., Taylor, J. W., Duck, T. J., and **Pierce, J. R.**: Aged boreal biomass burning aerosol size distributions from BORTAS 2011, *Atmos. Chem. Phys.*, 15, 1633-1646, doi:10.5194/acp-15-1633-2015, 2015.
  47. Gibson, M. D., Haelssig, J., **Pierce, J. R.**, Parrington, M., Franklin, J. E., Hopper, J. T., Li, Z., and Ward, T. J.: A comparison of four receptor models used to quantify the boreal wildfire smoke contribution to surface PM<sub>2.5</sub> in Halifax, Nova Scotia during the BORTAS-B experiment, *Atmos. Chem. Phys.*, 15, 815-827, doi:10.5194/acpd-14-815-2015, 2015.
  48. **Stevens, R.G., Pierce, J.R.**: The contribution of plume-scale nucleation to global and regional aerosol and CCN concentrations: evaluation and sensitivity to emissions changes: *Atmos. Chem. Phys.*, 14, 13661-13679, doi:10.5194/acp-14-13661-2014, 2014.

49. **Pierce, J.R.**, Westervelt, D.M., Atwood, S.A., Barnes, E.A., Leaitch, W.R.: New-particle formation, growth and climate-relevant particle production in Egbert, Canada: Analysis from one year of size-distribution observations, *Atmos. Chem. Phys.*, 8647-8663, doi:10.5194/acp-14-8647-2014, 2014.
50. Franklin, J. E., Drummond, J. R., Griffin, D., **Pierce, J. R.**, Waugh, D. L., Palmer, P. I., Parrington, M., Lee, J. D., Lewis, A. C., Rickard, A. R., Taylor, J. W., Allan, J. D., Coe, H., Walker, K. A., Chisholm, L., Duck, T. J., Hopper, J. T., Blanchard, Y., Gibson, M. D., Curry, K. R., **Sakamoto, K. M.**, Lesins, G., Dan, L., Kliever, J., and Saha, A.: A case study of aerosol scavenging in a biomass burning plume over eastern Canada during the 2011 BORTAS field experiment, *Atmos. Chem. Phys.*, 14, 8449-8460, doi:10.5194/acp-14-8449-2014, 2014.
51. Westervelt, D.M., **Pierce, J.R.**, Adams, P.J.: Analysis of feedbacks between nucleation rate, survival probability, and cloud condensation nuclei formation, *Atmos. Chem. Phys.*, 14, 5577-5597, doi:10.5194/acp-14-5577-2014, 2014.
52. **Croft, B.**, **Pierce, J.R.**, Martin, R.V.: Interpreting aerosol lifetimes using the GEOS-Chem model and constraints from radionuclide measurements *Atmos. Chem. Phys.*, 14, 4313-4325, doi:10.5194/acp-14-4313-2014, 2014.
53. Philip, S., R. V. Martin, **J. R. Pierce**, J. L. Jimenez, Q. Zhang, M. R. Canagaratna, D. V. Spracklen, C. R. Nowlan, L. N. Lamsal, M. J. Cooper, N. A. Krotkov: Spatially and seasonally resolved estimate of the ratio of global organic matter to organic carbon, *Atmospheric Environment*, 87, 34-40, DOI: 10.1016/j.atmosenv.2013.11.065, 2014.
54. Jaffe, D.A., Hof G., Malashanka S., Putz J., Thayer J., Fry J.L., Ayres B., **Pierce J.R.**: Diesel Particulate Matter Emission Factors and Air quality Implications from In-Service Rail in Washington State, USA, *Atmospheric Pollution Research*, 5, 344-351, 2014.
55. Carey Friedman, **Jeffrey Pierce**, Noelle Selin: Assessing the Influence of Secondary Organic versus Primary Carbonaceous Aerosols on Long-Range Atmospheric Polycyclic Aromatic Hydrocarbon Transport *Environmental Science & Technology*, 48, 3293-3302, DOI: 10.1021/es405219r, 2014.
56. **Folkens, I.**, **Mitovski, T.**, **Pierce, J.R.**: A Simple Way to Improve the Diurnal Cycle in Convective Rainfall over Land in Climate Models, *Journal of Geophysical Research*, 119, 2113-2130, DOI: 10.1002/2013JD020149, 2014.
57. **Stevens, R.S.**, **Pierce, J.R.**: A parameterization of sub-grid particle formation in sulphur-rich plumes for global and regional-scale models, *Atmos. Chem. Phys.*, 13, 12117-12133, doi:10.5194/acp-13-12117-2013, 2013.
58. **Stuart, G. S.**, **Stevens, R. G.**, Partanen, A.-I., Jenkins, A. K. L., Korhonen, H., Forster, P. M., Spracklen, D. V., and **Pierce, J. R.**: Reduced efficacy of marine cloud brightening geoengineering due to in-plume aerosol coagulation: parameterization and global implications, *Atmos. Chem. Phys.*, 13, 10385-10396, doi:10.5194/acp-13-10385-2013, 2013.
59. **D'Andrea, S. D.**, Hakkinen, S. A. K., Westervelt, D. M., Kuang, C., Levin, E. J. T., Kanawade, V. P., Leaitch, W. R., Spracklen, D. V., Riipinen, I., and **Pierce, J. R.**: Understanding global secondary organic aerosol amount and size-resolved condensational behavior, *Atmos. Chem. Phys.*, 13, 11519-11534, doi:10.5194/acp-13-11519-11534, 2013.

60. Leaitch, W.R., S. Sharma, L. Huang, A. M. Macdonald, D. Toom-Sauntry, A. Chivulescu, K. von Salzen, **J.R. Pierce**, N.C. Shantz, A. Bertram, J. Schroder, A.-L. Norman, R.Y.-W. Chang, A.-L. Norman: Dimethyl Sulphide Control of the Clean Summertime Arctic Aerosol and Cloud, *Elementa: Science of the Anthropocene*, DOI 10.12952/journal.elementa.000017, 2013.
61. Carslaw, K.S., L.A. Lee, C.L. Reddington, K. Pringle, A. Rap, P. M. Forster, G.W. Mann, D.V. Spracklen, Woodhouse, M.T., Regayre, L.A., **J.R. Pierce**: Large contribution of natural aerosols to uncertainty in indirect forcing, *Nature*, 503, 67-71, 2013.
62. Lee, L. A., Pringle, K. J., Reddington, C. L., Mann, G. W., Stier, P., Spracklen, D. V., **Pierce, J. R.**, and Carslaw, K. S.: The magnitude and causes of uncertainty in global model simulations of cloud condensation nuclei, *Atmos. Chem. Phys. Discuss.*, 13, 6295-6378, doi:10.5194/acpd-13-6295-2013, 2013.
63. Westervelt, D. M., **Pierce, J. R.**, Riipinen, I., Trivitayanurak, W., Hamed, A., Kulmala, M., Laaksonen, A., Decesari, S., and Adams, P. J.: Formation and growth of nucleated particles into cloud condensation nuclei: model-measurement comparison, *Atmospheric Chemistry and Physics*, 13, 7645-7663, doi:10.5194/acp-13-7645-2013, 2013.
64. Hakkinen, S. A. K., Manninen, H. E., Yli-Juuti, T., Merikanto, J., Kajos, M. K., Nieminen, T., **D'Andrea, S. D.**, Asmi, A., **Pierce, J. R.**, Kulmala, M., and Riipinen, I.: Semi-empirical parameterization of size-dependent atmospheric nanoparticle growth in continental environments, *Atmos. Chem. Phys.*, 13, 7665-7682, doi:10.5194/acp-13-7665-2013, 2013.
65. Ghan, S.J., Smith, S.J., Wang, M., Zhang, K., Bauer, S., Pringle, K.J., Carslaw, K.S., **Pierce, J.R.**, Adams, P.J.: A Simple Model of Global Aerosol Indirect Effects, *Journal of Geophysical Research*, 118, 6688-6707, DOI: 10.1002/jgrd.50567, 2013.
66. Gibson, M. D., **Pierce, J. R.**, Waugh, D., Kuchta, J. S., Chisholm, L., Duck, T. J., Hopper, J. T., Beauchamp, S., King, G. H., Franklin, J. E., Leaitch, W. R., Wheeler, A. J., Li, Z., Gagnon, G. A., and Palmer, P. I.: Identifying the sources driving observed PM<sub>2.5</sub> variability over Halifax, Nova Scotia, during BORTAS-B, *Atmos. Chem. Phys.*, 13, 7199-7213, doi:10.5194/acp-13-7199-2013, 2013.
67. Palmer, P.I., M. Parrington, J.D. Lee, A.C. Lewis, A.R. Rickard, P.F. Bernath, T.J. Duck, D.L. Waugh, D.W. Tarasick, S. Andrews, E. Aruffo, L.J. Bailey, E. Barrett, S.J.B. Bauguitte, K.R. Curry, P. Di Carlo, L. Chisholm, L. Dan, J.R. Drummond, G. Forster, J.E. Franklin, M. Gibson, D. Griffin, D. Helmig, J.R. Hopkins, J.T. Hopper, M.E. Jenkin, D. Kindred, J. Kliever, M. Le Breton, S. Matthiesen, M. Maurice, S. Moller, D.P. Moore, D.E. Oram, S.J. O'Shea, R.C. Owen, C.M.L.S. Pagniello, S. Pawson, C.J. Percival, **J.R. Pierce**, S. Punjabi, R.M. Purvis, J.J. Remedios, K.M. Rotermund, **K.M. Sakamoto**, K.B. Strawbridge, K. Strong, J. Taylor, R. Trigwell, K.A. Tereszchuk, K.A. Walker, D. Weaver, C. Whaley, and J.C. Young, Quantifying the impact of BOREal forest fires on Tropospheric oxidants over the Atlantic using Aircraft and Satellites (BORTAS) experiment: design, execution and science overview, *Atmos. Chem. Phys.*, 13, 6239-6261, doi:10.5194/acp-13-6239-2013, 2013.
68. Lee, Y.H., **Pierce, J.R.**, Adams, P.J.: Representation of nucleation mode microphysics in global aerosol microphysics models, *Geosci. Model Dev.*, 6, 1221-1232, doi:10.5194/gmd-6-1221-2013, 2013.



69. Gong, L., Lewicki, R., Griffin, R.J., Tittel, F.K., **Lonsdale, C.R., Stevens, R.G., Pierce, J.R.**, Malloy, Q.G.J., Travis, S.A., Bobmanuel, L.M., Lefer, B.L., Flynn, J.H.: Atmospheric ammonia measurements and implications for particulate matter formation in Houston, TX, *Atmospheric Environment*, 77, 893-900, doi:10.1016/j.atmosenv.2013.04.079, 2013.
70. Ridley, D.A., Heald, C.L., **Pierce, J.R.**, Evans, M.J.: Towards resolution-independent dust emissions in global models, *Geophysical Research Letters*, 40, 1-5, doi:10.1002/grl.50409, 2013.
71. **Pierce, J.R.**, Evans, M.J., Scott, C.E., **D'Andrea, S.D.**, Farmer, D.K., Swietlicki, E., Spracklen, D.V.: Weak sensitivity of cloud condensation nuclei and the aerosol indirect effect to Criegee+SO<sub>2</sub> chemistry, *Atmospheric Chemistry and Physics*, 13, 3163-3176, doi:10.5194/acp-13-3163-2013, 2013.
72. **Lonsdale, C.R., Stevens, R.G.**, Brock, C.A., Makar, P.A., Knipping, E.M., **Pierce, J.R.**: The effect of coal-fired power-plant SO<sub>2</sub> and NO<sub>x</sub> control technologies on aerosol nucleation and growth in the source plumes, *Atmospheric Chemistry and Physics*, 12, 11519-11531, doi:10.5194/acp-12-11519-2012, 2012.
73. **Wainwright, C.D., Pierce, J.R.**, Liggio, J., Strawbridge, K.B., Macdonald, A.M., Leaitch, W.R.: The effect of model spatial resolution on Secondary Organic Aerosol predictions: A case study at Whistler, BC, Canada, *Atmospheric Chemistry and Physics*, 12, 10911-10923, doi:10.5194/acp-12-10911-2012, 2012.
74. Riipinen, I., Yli-Juuti, T., **Pierce, J.R.**, Petaja, T., Worsnop, D.R., Kulmala, M., Donahue, N.: Role of organics in atmospheric nanoparticle growth – recent breakthroughs and major unknowns, *Nature Geoscience*, 5, 453-458, 2012.
75. Shantz, N.C., **Pierce, J.R.**, Chang, R.Y.-W., Vlasenko, A., Riipinen, I., Sjostedt, S., Slowik, J.G., Wiebe, A., Abbatt, J.P.D., Leaitch, W.R.: Cloud condensation nuclei droplet growth kinetics of ultrafine particles during anthropogenic nucleation events, *Atmospheric Environment*, 47, 389-398, 2012.
76. **Croft, B., Pierce, J.R.**, Martin, R.V., Hoose, C., Lohmann, U., Strong sensitivity of aerosol concentrations to convective wet scavenging parameterizations in a global model, *Atmospheric Chemistry and Physics*, 12, 10725-10748, doi:10.5194/acp-12-10725-2012, 2012.
77. **Stevens, R.G., Pierce, J.R.**, Brock, C.A., Reed, M.K., Crawford, J.H., Holloway, J.S., Ryerson, T.B., Huey, L.G., and Nowak, J.B.: Nucleation and growth of sulfate aerosol in coal-fired power plant plumes: sensitivity to background aerosol and meteorology, *Atmospheric Chemistry and Physics*, 12, 189-206, doi:10.5194/acp-12-189-2012, 2012.
78. **Pierce, J. R.**, W. R. Leaitch, J. Liggio, D. M. Westervelt, **C. D. Wainwright**, J. P. D. Abbatt, L. Ahlm, W. Al-Basheer, D. J. Cziczo, K. L. Hayden, A. K. Y. Lee, S.-M. Li, L. M. Russell, S. J. Sjostedt, K. B. Strawbridge, M. Travis, A. Vlasenko, J. J. B. Wentzell, H. A. Wiebe, J. P. S. Wong, A. M. Macdonald: Nucleation and condensational growth to CCN sizes during a sustained pristine biogenic SOA event in a forested mountain valley, *Atmos. Chem. Phys.*, 12, 3147-3163, doi:10.5194/acp-12-3147-2012, 2012.
79. **Pierce, J.R.**, Riipinen, I., Kulmala, M., Ehn, Petaja, T., Junninen, H., Worsnop, D.R., Donahue, N.M.: Quantification of the volatility of secondary organic compounds in ultrafine particles during nucleation events, *Atmospheric Chemistry and Physics*, 11, 9019-9036, doi:10.5194/acp-11-9019-2011, 2011.

80. Chang, R.Y.-W., Sjostedt, S.J., **Pierce, J.R.**, Papakyriakou, T.N., Scarratt, M.G., Michaud, S., Levasseur, M., Leaitch, W.R., Abbatt, J.,P.,D., Relating Atmospheric and Oceanic DMS Levels to Particle Nucleation Events in the Canadian Arctic, *Journal of Geophysical Research*, 116, D00S03, doi:10.1029/2011JD015926, 2011.
81. Donahue, N.M., Trump, E.R., **Pierce, J.R.**, Riipinen, I.: Theoretical Constraints on Pure Vapor-Pressure Driven Condensation of Organics to Ultrafine Particles, *Geophysical Research Letters* , 38, L16801, doi:10.1029/2011GL048115, 2011.
82. **Snow-Kropla, E. J., Pierce, J. R.**, Westervelt, D. M., Trivitayanurak, W.: Cosmic rays, aerosol formation and cloud-condensation nuclei: Sensitivities to model uncertainties, *Atmospheric Chemistry and Physics*, 11, 4001-4013, doi:10.5194/acp-11-4001-2011, 2011
83. Riipinen, I., **Pierce, J. R.**, Yli-Juuti, T., Nieminen, T., Häkkinen, S., Ehn, M., Junninen, H., Lehtipalo, K., Petäjä, T., Slowik, J., Chang, R., Shantz, N. C., Abbatt, J., Leaitch, W. R., Kerminen, V.-M., Worsnop, D. R., Pandis, S. N., Donahue, N. M., and Kulmala, M.: Organic condensation: a vital link connecting aerosol formation to cloud condensation nuclei (CCN) concentrations, *Atmospheric Chemistry and Physics*, 11, 3865-3878, doi:10.5194/acp-11-3865-2011, 2011.
84. Lee, B.-H., **Pierce, J.R.**, Engelhart, G.J., Pandis, S.N., Volatility of secondary organic aerosol from the ozonolysis of monoterpenes, *Atmospheric Environment*, 2443-2452, 2011.
85. **Pierce, J.R.**, Weisenstein, D.K., Heckendorn, P., Peter, T., Keith, D.W., Efficient formation of stratospheric aerosol for climate engineering by emission of condensible vapor from aircraft, *Geophysical Research Letters*, 37, L18805, doi:10.1029/2010GL043975, 2010.
86. **Pierce, J.R.**, Kahn, R.A., Davis, M.R., and Comstock, J.M., Detecting thin cirrus in MISR aerosol retrievals, *Journal of Geophysical Research*, 115, D08201, doi:10.1029/2009JD013019, 2010.
87. Riipinen, I., **Pierce, J.R.**, Donahue, N.M., Pandis, S.N., Equilibration time scales of organic aerosol inside thermodenuders: Evaporation kinetics versus thermodynamics, *Atmospheric Environment*, 44, 597-607, 2010.
88. **Pierce, J.R.**, Adams, P.J., Can cosmic rays affect cloud condensation nuclei by altering new particle formation rates, *Geophysical Research Letters*, 36, L09820, 2009.
89. Kostenidou, E., Lee B.-H., Engelhart, G.J., **Pierce, J.R.**, Pandis, S.N., Mass Spectra Deconvolution of Low, Medium and High Volatility Biogenic Secondary Organic Aerosol, *Environmental Science and Technology*, 43, 4884-4889, 2009.
90. **Pierce, J.R.**, Theodoritsi, G., Adams, P.J., Pandis, S.N., Parameterization of the effect of sub-grid scale aerosol dynamics on aerosol number emission rates, *Journal of Aerosol Science*, 40, 385-393, 2009.
91. **Pierce, J.R.**, Adams, P.J., Uncertainty in global CCN concentrations from uncertain aerosol nucleation and primary emission rates, *Atmospheric Chemistry and Physics*, 9, 1339-1356, 2009.
92. **Pierce, J.R.**, Adams, P.J., A computationally efficient aerosol nucleation/condensation method: Pseudo-steady-state sulfuric acid, *Aerosol Science and Technology*, 43, 216-226 2009.
93. **Pierce, J.R.**, Engelhart, G.J., Hildebrandt, L., Weitkamp, E.A., Pathak, R.K., Donahue, N.M., Robinson, A.R., Adams, P.J., Pandis, S.N., Constraining particle evolution from

wall losses, coagulation, and condensation evaporation in smog-chamber experiments: optimal estimation based on size distribution measurements, *Aerosol Science and Technology*, 42, 1001-1015, 2008.

94. L.-H. Young, D. Benson, F. Kameel, **J. R. Pierce**, H. Junninen, M. Kulmala, and S.-H. Lee, Laboratory Studies of H<sub>2</sub>SO<sub>4</sub>/H<sub>2</sub>O Binary Homogeneous Nucleation from the SO<sub>2</sub>+OH Reaction: Evaluation of the Experimental Setup and Preliminary Results, *Atmospheric Chemistry and Physics*, 8, 4997-5016, 2008.
95. **Pierce, J.R.**, Chen, K., and Adams, P.J., Contribution of carbonaceous aerosol to cloud condensation nuclei: processes and uncertainties evaluated with a global aerosol microphysics model, *Atmospheric Chemistry and Physics*, 7, 5447-5466, 2007
96. Weitkamp, E.A., Sage, A.M., **Pierce, J.R.**, Donahue, N.M., Robinson, A.L., Organic aerosol formation from photochemical oxidation of diesel exhaust in a smog chamber, *Environmental Science and Technology*, 41 (20), 6969 -6975, 2007.
97. **Pierce, J.R.**, and Adams, P.J., Efficiency of cloud condensation nuclei formation from ultrafine particles, *Atmospheric Chemistry and Physics*, 7, 1367-1379, 2007.
98. Robinson, A.L., Donahue, N.M., Shrivastava, M.K., Weitkamp, E.A., Sage, A.M., Grieshop, A.P., Lane, T.E., **Pierce, J.R.**, Pandis, S.N., Rethinking organic aerosols: Semivolatile emissions and photochemical aging, *Science*, 315, March 2, 2007.
99. **Pierce, J.R.**, and Adams P.J., Global evaluation of CCN formation by direct emission of sea salt and growth of ultrafine sea salt, *Journal of Geophysical Research-Atmospheres*, 111 (D6), doi:10.1029/2005JD006186, 2006.

#### **Peer reviewed conference proceedings**

1. Kenneth S. Carslaw, Lindsay A. Lee, Kirsty J. Pringle, Graham W. Mann, Dominick V. Spracklen, Philip Stier, **Jeffrey R. Pierce**: New approaches to quantifying the magnitude and causes of uncertainty in global aerosol models, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 641, 2013.
2. **J. R. Pierce**, M. J. Evans, C. E. Scott, **S. D. D'Andrea**, D. K. Farmer, E. Swietlicki, D. V. **Spracklen**: **The sensitivity of global nucleation, cloud condensation nuclei and climate to SO<sub>2</sub> and Criegee-intermediate chemistry**, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 675, 2013.
3. W. Richard Leitch, L. Huang, A. M. Macdonald, S. Sharma, D. Toom-Saunry, K. von Salzen, **Jeffrey R. Pierce**: A comparison of measurements and global model simulations of the atmospheric aerosol at two remote sites, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 511, 2013.
4. **Stephanie Gagne, Landan MacDonald**, Michael Earle, W. Richard Leitch, **Jeffrey R. Pierce**: Aircraft measurements of aerosol, cloud droplets and drizzle in stratiform clouds over the northwest Atlantic ocean, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 722, 2013.
5. **Robin Stevens, Chantelle Lonsdale**, Charles Brock, Paul Makar, Eladio Knipping, Molly Reed, James Crawford, John Holloway, Tim Ryerson, L. Greg Huey, John Nowak, **Jeffrey Pierce**: Aerosol nucleation in coal-fired power-plant plumes, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 417, 2013.
6. **S. D. D'Andrea**, S. A. K. Hakkinen, D. M. Westervelt, C. Kuang, D. V. Spracklen, I. Riipinen, **J. R. Pierce**: Effect of secondary organic aerosol amount and condensational

behavior on global aerosol size distributions, AIP Conf. Proc.: Nucleation and Atmospheric Aerosols, 1527, 667, 2013.

### **Other relevant publications**

1. Val Martin, M., **Pierce, J. R.**, Heald, C. L.: Studying the effects of changing climate on wildfires and impacts to the United States air quality, *Fire Management Today*, 74, 3, 2015.
2. **Pierce, J.R.**: Particulars of particle formation, News and Views article in *Nature Geoscience*, 4, 665-666, 2011.
3. **Pierce, J.R.**: Cosmic rays and clouds: Potential mechanisms, guest article for *realclimate.org*, September 26, 2011, <http://www.realclimate.org/index.php/archives/2011/09/cosmic-rays-and-clouds-potential-mechanisms/>.

### **Invited presentations (not including 170+ non-invited presentations)**

1. Pierce, J.R., et al., “Downwind of the Flames: Assessing and predicting wildfire smoke related morbidity using satellites, in-situ measurements and models”, NASA Applied Science Meeting, Burlington, VT, 9/2018.
2. Pierce, J.R., et al., “Beyond emissions and chemistry: Fire size, dilution, and background aerosol also greatly influence biomass burning aerosol aging”, Telluride Aerosol/Cloud Meeting, Telluride, CO, 8/2018.
3. Pierce, J.R., et al., “Smoke exposure and associated health effects across several fire seasons and locations in the western U.S.”, Air and Waste Management Association, Hartford, CT, 6/2018.
4. Pierce, J.R., et al., “New-particle formation and growth during tropical free-tropospheric subsidence”, American Geophysical Union, San Francisco, CA, 12/2017.
5. Pierce, J.R., et al., “Processes controlling aerosol size distributions and climate effects in the Arctic”, American Association of Aerosol Research, Raleigh, NC, 10/2017.
6. Pierce, J.R., et al., “Downwind of the Flames: Assessing and predicting wildfire smoke related morbidity using satellites, in-situ measurements and models”, NASA Applied Science Meeting, Reno, NV, 9/2017.
7. Pierce, J.R., et al., “Fire Emissions and Air Quality Impacts in Colorado and the West: Today and in the Future”, Air Quality Control Commission Hosted Science Forum, Boulder, CO, 4/2017.
8. Pierce, J.R., et al., “On nucleation and growth in the free tropospheric and the Arctic”, University of Helsinki, Atmospheric Physics Seminar, Helsinki, Finland, 11/2016.
9. Pierce, J.R., et al., “Exploring the evolution of biomass-burning aerosol in chambers and the atmosphere”, University of Colorado, Environmental Chemistry Seminar, Boulder, CO, 11/2016.
10. Pierce, J.R., et al., “On the two-way aerosol-cloud coupling in the tropics”, University of Washington, Atmospheric Science Seminar, Seattle, WA, 10/2016.
11. Pierce, J.R., William Lassman, Bonne Ford, Emily Fischer, Gabriele Pfister, Ryan Gan, Sheryl Magzamen, and John Volckens, “Downwind of the Flames: Assessing and predicting wildfire smoke related morbidity using satellites, in-situ measurements and models”, NASA Applied Science Meeting, Ashville, NC, 9/2016.
12. Pierce, J.R. et al., “The aerosol-cloud circuit in the Hadley cell”, Telluride Aerosol/Cloud Meeting, Telluride, CO, 6/2016.

13. Pierce, J.R. et al., “Aerosol nucleation and growth in the tropical free troposphere: What are our initial conditions? And why do they matter?”, CLOUD Science Meeting, Frankfurt, Germany, 6/2016.
14. Pierce, J.R. et al., “Need for accurate chemistry in aerosol models: Aerosols effects on deep-convective clouds and lightning”, American Chemical Society, Boston, MA, 8/2015.
15. Pierce, J.R., “Atmospheric Aerosols, Heath and Climate”, CMMAP REU Seminar Series, CSU, Ft. Collins, CO, 6/2015.
16. Pierce, J.R., “Low-volatility organics and climate”, Pacific Northwest National Lab, Richland, WA, 6/2015
17. Pierce, J.R., et al., “The Contribution of Sub-Grid, Plume-Scale Nucleation to Global CCN Concentrations”, American Chemical Society, Denver, CO, 3/2015.
18. Pierce, J.R., et al., “New-particle formation and growth at the DOE Southern Great Plains field site in Oklahoma”, Department of Energy Atmospheric Systems Research annual meeting, Washington D.C., 3/2015.
19. Pierce, J.R., et al., “The Contribution of Sub-Grid, Plume-Scale Nucleation to Global CCN Concentrations”, American Meteorological Society, Pheonix, AZ, 1/2015.
20. Pierce, J.R., et al., “Why chemistry matters for aerosol size and aerosol-cloud-climate interactions: Where do aerosol-climate researchers need help from chemists?”, American Chemical Society, San Francisco, CA, 8/2014.
21. Pierce, J.R., et al., “Estimating the climate impact of biofuel emissions”, Telluride Aerosol and Cloud Workshop, Telluride, CO, 8/2014.
22. Pierce, J.R., et al., “New-particle formation, growth and climate-relevant particle production in Egbert, Canada: Analysis from one year of size-distribution observations”, Dalhousie University, Halifax, NS, Canada, 11/2013.
23. Pierce, J.R., et al., “Atmospheric organics, ultrafine aerosols, CCN and climate”, National Center for Atmospheric Research, Boulder, CO, 4/2013.
24. Pierce, J.R., et al., “Cloud Condensation Nuclei and the Aerosol Indirect Effect: How do we moving forward?”, Dalhousie University, Halifax, Canada, 12/2012.
25. Pierce, J.R., et al., “Uncertainties in SO<sub>2</sub> and aerosol formation: (1) Anthropogenic sulfur plumes, (2) SO<sub>2</sub> + criegee”, Leeds University, Leeds, UK, 9/2012.
26. Pierce, J.R., et al., “The formation and growth of ultrafine atmospheric aerosols: Uncertainties in sulfur chemistry”, York University, York, UK, 9/2012.
27. Pierce, J.R., et al., “CCN predictions in global aerosol models: Where do we need improvements?”, Telluride Aerosol and Cloud Workshop, Telluride, CO, 8/2012.
28. Pierce, J.R., et al., “Aerosol chemistry in coal-fired power-plant plumes: Can emissions controls increase particle number concentrations?”, Canadian Chemistry Conference, Calgary, Alberta, 5/2012.
29. Pierce, J.R., “What would it take for cosmic-ray fluctuations to have a significant impact on CCN?”, CLOUD ITN meeting, Frankfurt, Germany, 5/2012.
30. Pierce, J.R., “The formation and growth of ultrafine atmospheric aerosols”, invited talk at Stockholm University, Sweden, 5/2012.
31. Pierce, J.R., “The formation and growth of ultrafine atmospheric aerosols”, invited talk at Colorado State University, 3/2012.
32. Pierce, J.R., Ilona Riipinen, Markku Kulmala, Mikael Ehn, Tukka Petäjä, Heikki Junninen, Doug Worsnop, Neil Donahue, “The volatility of secondary organic

- compounds in ultrafine particles during nucleation events”, invited talk at International Aerosol Modeling Algorithms meeting, Davis, CA, 11/2011.
33. Pierce, J.R., “Adventures in aerosol microphysics... Episode 1: Power plants, pollution controls and CCN formation; Episode 2: Cosmic rays, aerosols, clouds and climate”, invited talk at NOAA, Boulder, CO, 11/2011.
  34. Pierce, J.R., “Cosmic rays, aerosols, clouds and other adventures in aerosol microphysics”, invited talk at Colorado State University, 11/2011.
  35. Pierce, J.R., “Cosmic rays, aerosols, clouds and climate”, invited talk at US National Research Council Meeting on Solar Variability and Climate, Boulder, CO, 9/2011.
  36. Pierce, Jeffrey R.; Weisenstein, Debra K.; Heckendorn, Patricia; Peter, Thomas; Keith, David, “Efficient formation of stratospheric aerosol for geoengineering by emission of condensable vapour from aircraft”, invited talk at American Geophysical Union, San Francisco, 12/2010.
  37. Pierce, J.R., “The global impact of plume-scale nucleation events”, invited talk at Clarkson University, Potsdam, NY, USA, 11/2010.
  38. Pierce, Jeffrey R.; Weisenstein, Debra K.; Heckendorn, Patricia; Peter, Thomas; Keith, David, “Efficient formation of stratospheric aerosol for geoengineering by emission of condensable vapour from aircraft”, invited talk at American Association of Aerosol Research, Portland, Oregon, 10/2010.
  39. Pierce, J.R., Stevens, R.G., et al., “New aerosol formation and growth in coal-fired power-plant plumes”, invited talk at Electric Power Research Institute annual modeling meeting, Palo Alto, CA, 7/2010.
  40. Pierce, J.R., Weisenstein, D.K., Heckendorn, P., Peter, T., Keith, D.W., “Efficient formation of stratospheric aerosol for geoengineering by emission of condensable vapour from aircraft”, invited talk at the European Geophysical Union Annual Conference, Vienna, Austria, 5/2010.
  41. Pierce, J.R., “The global impact of plume-scale nucleation events”, invited talk at Environment Canada, Dartmouth, NS, Canada, 2/2010.
  42. Pierce, J.R., “The global impact of plume-scale nucleation events”, invited talk at Environment Canada, Downsview, ON, Canada, 1/2010.
  43. Pierce, J.R., Stevens, R.G., Brock, C.A., “How do uncertainties in plume-scale aerosol processes inhibit our understanding of aerosols, clouds and climate?”, invited talk at Cloud-Aerosol Feedbacks on Climate meeting, Toronto, Canada, 2/2010.
  44. Pierce, J.R., “The global impact of plume-scale nucleation events”, invited talk at Danish Technical University, Copenhagen, Denmark, 1/2010.
  45. Pierce, J.R., “The global impact of plume-scale nucleation events”, invited talk at University of Helsinki, Helsinki, Finland, 1/2010.
  46. Pierce, J.R., Stevens, R.G., Brock, C.A., “How do uncertainties in plume-scale aerosol processes inhibit our understanding of aerosols, clouds and climate?”, invited talk at Canadian Center for Climate Modelling and Analysis, Victoria, BC, 11/2009.
  47. Pierce, J.R., Stevens, R.G., Brock, C.A., “How do uncertainties in plume-scale aerosol processes inhibit our understanding of aerosols, clouds and climate?”, invited talk at Atmospheric Colloquium for Emerging Senior Scientists, 8/2009.
  48. Pierce, J.R., “New developments in aerosol-cloud interactions”, invited talk at Carnegie-Mellon University, 6/2009.

49. Pierce, J.R., “Understanding sub-grid aerosol processes in chemical-transport models”, invited talk at AEROCENTER, NASA Goddard Space Flight Center, 6/2009.
50. Pierce, J.R., “Jointly retrieving aerosols and thin cirrus using MISR”, invited talk at NASA Goddard Space Flight Center, Climate and Radiation Branch, 5/2009.
51. Pierce, J.R., “Understanding sub-grid aerosol processes in chemical-transport models”, invited talk at NASA Langley Research Center, 5/2009.
52. Pierce, J.R., “Towards understanding aerosol physical and chemical properties”, invited talk at Dalhousie University, Department of Physics and Atmospheric Science, 3/2009.
53. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at University of Toronto, Department of Chemistry, 1/2009.
54. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at University of Connecticut, Department of Chemical Engineering, 4/2008.
55. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Dalhousie University, Department of Physics and Atmospheric Science, 4/2008.
56. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Duke University, Department of Civil and Environmental Engineering, 3/2008.
57. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Goddard Space Flight Center, 3/2008.
58. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Brookhaven National Lab, 3/2008.
59. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Purdue University, Department of Earth and Atmospheric Science, 3/2008.
60. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Northeastern University, Department of Chemical Engineering, 3/2008.
61. Pierce, J.R., “Ultrafine atmospheric aerosols, clouds and climate”, invited talk at Massachusetts Institute of Technology, MASS seminar, 2/2008.
62. Pierce, J.R., “Impact of ultrafine aerosols on cloud condensation nuclei”, invited talk at Penn State, Department of Meteorology, 11/2007.
63. Pierce, J.R., “Climate change and chemical engineering”, invited talk for Northeastern University student American Institute of Chemical Engineers, Boston, MA, 3/2007.

### **Memberships and Professional Service**

Executive committee member for the Canadian Network on Climate and Aerosols (NETCARE) (2013-)

Co-organized the Telluride Aerosols and Clouds workshop (2014)

American Association for Aerosol Research (AAAR): member, Atmospheric Aerosols Working Group Chair (2009-2010), Young Investigators Committee (Chair, 2010-2011), Newsletter Committee (2015-), co-organized 2 special symposia at annual meetings.

American Geophysical Union (AGU): member, organized “Characterizing Global Aerosol Through Multi-sensor and Model Synergy” session (2014).

European Geophysical Union (EGU): member

International Global Atmospheric Chemistry (IGAC): member

GEOS-Chem: Atmospheric Aerosol steering committee co-chair (2011-)

Peer reviewed over 140 manuscripts since 2006.

### **Research Advisees**

**Colorado State:**

**Ph.D.:** John (Jack) Kodros (2015-2018), Anna Hodshire (2016-), William Lassman (2016-), Ali Akherati (Mech E, 2016-), Katelyn O'Dell (2018-)

**Masters:** Kimiko Sakamoto (2013-2014), John (Jack) Kodros (2013-2015), Landan Macdonald (2013-2015), Brad Wells (2013-2015), Anna Hodshire (2014-2016), William Lassman (2014-2016), Emily Ramnarine (2016-2018), Katelyn O'Dell (2016-2018)

**Undergraduate:** Jessica Ng (2014), Rachel Cucinotta (2015), Maryssa Loehr (2016), Sarah Zelasky (2017)

**Postdoctoral:** Bonne Ford Hotmann (2015-2017), Qijing (Emily) Bian (2014-2016)

**Research Scientists:** Maria Val Martin (2013-2017), Bonne Ford Hotmann (2017-)

**Research Associates:** Emily Ramnarine (2018-)

**Masters Advisory Committees:** Christina McCluskey, Stephen Brey, Kevin Dischino (Mechanical Engineering), Scott Kelleher (Mechanical Engineering), Sailaja Eluri (Mechanical Engineering), Eric Wendt (Mechanical Engineering)

**Doctoral Advisory Committees:** Sam Atwood, Ali Boris, Ashley Evanski-Cole, Vandana Jha, Doug Stolz, Christina McCluskey, Travis Ashby, Brody Fuchs, Robert Nelson, Zitely Tzompa, Stephen Brey, Patrick Brophy (Chemistry), Holly Debolt (Chemistry), Kelsey Bilsback (Mechanical Engineering), Laurie McHale (Mechanical Engineering)

**Dalhousie:**

**Undergraduate:** Robert Archibald (2010), Elliot Snow-Kropla (2010-2011), Christopher Wainwright (2010-2011), Geoffrey Stuart (2011-2013), Landan MacDonald (2012-2013)

**Masters:** Robin Stevens, (2009-2010; transferred to Ph.D.), Chantelle Lonsdale (2010-2012), Stephen D'Andrea (2012-2013)

**Ph.D.:** Robin Stevens, (2010-2014)

**Postdoctoral:** Betty Croft (2011-), Stephanie Gagne (2011-2013)

**Research assistant:** Christopher Wainwright (2011-2012), Kimiko Sakamoto (2012)

**Doctoral Advisory Committees:** Aaron van Donkelaar, Betty Croft, Colin Lee, Brian Boys, Sajeev Philip

**Masters Advisory Committees:** Gray O'Byrne, Jonathan Doyle, Lubna Bitar, Colin Pike-Thackray, Sara Torbatian, Sajeev Philip, Ryan Robski, Chris Perro, Akhila Padmanabhan, Zalalem Engida

**Other institutions:**

**Ph.D. external examiner:** Torsten Bondo, Danish Technical University, January, 2010; Amar Hamed, University of Helsinki, August, 2010; Eimear Dunne, University of Leeds, September, 2012. Jenni Kontkanen, University of Helsinki, November, 2016.

**University Activities**

**CSU ATS Graduate Committee:** 2018-

**CSU Engineering Awards Committee:** 2018-

**CSU ATS Web Committee:** 2018-

**CSU ATS Department Code Committee:** 2017-



**CSU ATS Faculty Search Committee:** 2015-2016  
**CSU Engineering Network Services review committee:** 2015  
**CSU AAAR Student Group mentor:** 2013-  
**CSU Colloquium Committee:** 2014-2018  
**CSU ATS Awards Committee:** 2013, 2015  
**CSU Faculty Council:** (Substitute councilman 2x, 2013, 1x 2014)  
**Dal Faculty Senator:** 2011-2012  
**Dal Atmospheric Science Seminar organizer:** 2009-2012  
**Dal Atmospheric Science graduate student presentation organizer:** 2009-2012  
**Dal Faculty of Graduate Studies NSERC PGF-D committee:** 2009-2011  
**CMU Chemical Engineering Graduate Student Association (ChEGSA),** Graduate Symposium organizer (2004), President (2005), Secretary (2007).  
**CMU Student Chemical Engineering Car Team (Chem-E-Car),** Advisor (2005-2008)  
**NU Tau Beta Pi (Engineering Honor Society),** President (2002-2003)  
**NU Student Chemical Engineering Car Team (Chem-E-Car),** Member (2001-2003), Captain (2001-2002)  
**NU Student American Institute of Chemical Engineers,** Class Representative (1999-2003)  
**NU Jazz Ensemble,** Piano and Organ (1999-2003)