

JINGQIU MAO

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Research Interest

Biosphere-atmosphere interactions, arctic urban air pollution, biomass burning emission and chemistry, fundamental chemical mechanisms, secondary organic aerosol formation, chemistry-climate interactions, remote sensing of atmospheric trace gases

Education and Training

Postdoctoral Fellow, <i>Harvard University, Cambridge, MA</i>	2008-2010
Advisor: Prof. Daniel J. Jacob	
Ph.D. Meteorology, <i>Pennsylvania State University, PA</i>	2002-2008
Advisor: Prof. William H. Brune	
Thesis: <i>Measurement and modeling of OH reactivity in the atmosphere</i>	
M.S., Atmospheric Chemistry, <i>Institute of Atmospheric Physics, China</i>	1999-2002
B.S., Chemistry, <i>Shenzhen University, China</i>	1995-1999

Professional Experience

Assistant Professor of Atmospheric Chemistry	2016/11-present
Associate Research Scholar, Princeton University/NOAA GFDL	2010-2016

Honors, Awards and Research Impacts

NASA Group achievement award for ARCTAS	2009
NASA Group achievement award for INTEX-B	2008
NASA Group achievement award for INTEX-A	2005

Teaching Experience

<i>Assistant Professor, University of Alaska Fairbanks</i>	
Quantitative Chemical Analysis (2 nd -3 rd year undergraduate)	2019
Analytical Instrumental Laboratory (3 rd -4 th year undergraduate)	2018-2020
Atmospheric Chemistry (graduate)	2017-2020
<i>Guest Lecturer</i> : Pennsylvania State University, EMSci100	2007
<i>Instructor</i> : Penn State Upward Bound Math and Science Program, Summer Experience in Earth and Mineral Sciences (SEEMS)	2006,2007

Research Funding

Current (\$2.4 M as lead PI)

1. "Anthropogenic influence on the oxidation of biogenic volatile organic compounds: implication for formation of secondary organic aerosols", NOAA Climate Program Office, 2018-2021, \$389,274 (**PI**).
2. "Remote sensing of formaldehyde at northern high latitudes: Probing the chemical impacts of Arctic greening", NASA ESPCoR CAN award, 2019-2022, \$750,000 (**Science PI**).
3. "Rural Alaska Air Quality with Big Data Analysis", Faculty Initiative Fund, 2019-2020, \$30,000 (**PI**).
4. "NNA Track 1: Collaborative Research: Sustainably Navigating Arctic Pollution Through Engaging Communities (SNAP-TEC)", NSF NNA, 2019-2023, \$964,884 (**co-PI**).
5. "Measurement and Modeling of Brown Carbon (BrC) from Boreal Forest Wildfires in Alaska", NSF Atmospheric Chemistry, 2020-2023, \$454,019 (**PI**).
6. "REU Site: Understanding Arctic as a System", NSF REU, 2015-2021, \$4,339 (**co-I**).

7. "Collaborative Research: Investigating Formation of Sulfur Aerosols in Fairbanks, Alaska", NSF Atmospheric Chemistry, 2020-2023, \$316,576 (**PI**).
8. "Air quality and health impacts of boreal fires: decision support and applied research supported by NASA satellite products", NASA HAQAST, 2021-2025, \$499,579 (**PI**).

Past

1. "Impact of organic nitrate chemistry on air quality and climate: past, present and future atmospheres", NOAA Climate Program Office, 2013-2016, \$392,881 (**PI**).
2. "Evaluating how dry deposition influences eastern U.S. ozone, aerosols, and precursors: Mean contributions, uncertainties, and spatio-temporal variability from weather, regional climate and land use", NOAA Climate Program Office, 2014-2017, \$52,000 to JM (**co-I**).
3. "Southeast Atmosphere Studies Workshop: Intensive Observation Period Modeling to Improve Mechanistic Representation of Trends", NSF, 2015-2016, \$20,000 (**PI**).
4. "Two Days Workshop to Study Wintertime Urban Atmospheric Pollution Processes; Fairbanks, Alaska; Mid-May 2018", NSF, 2018-2019, \$21,391 (**co-PI**).
5. "Ground validation of satellite measurements of HCHO columns at northern high latitudes", Alaska NASA EPSCoR RID seed award, 2018-2019, \$30,100 (**PI**).
6. "Regional Haze Visibility with GEOS-Chem Model", Alaska Department of Environmental Conservation, 2018-2019, \$23,900 (**PI**).
7. "Characterizing soluble transition metals in ambient PM_{2.5}: a link between air pollution and human health", UAF BLaST, 2018-2020, \$40,000 (**PI**).
8. "Improving understanding of sulfur species in Fairbanks fine particulate matter", Fort Wainwright, \$97,000 (**co-PI**).

Student Awards

1. "Characterizing Anion and Metal Aerosol Composition and Formation in Arctic Air", Alaska Space Grant, 2017-2018, \$15,000 (Ragen Davey).
2. Alaska Space Grant Fellowship, 2017-2018, \$5,000 (Kiersten Johnson).
3. NASA Student Airborne Research Program summer intern, 2018 (Kiersten Johnson).
4. Undergraduate Research & Scholarly Activity Fellowship, 2018, \$5,000 (James Campbell).
5. "Characterizing Wintertime Aerosol Composition and Sulfate Formation in Fairbanks, Alaska", Alaska Space Grant, 2018-2019, \$22,575 (Ragen Davey).
6. Alaska Space Grant Fellowship, 2018-2019, \$5,000 (James Campbell).
7. Alaska EPSCoR travel award, 2019 (Ragen Davey).
8. NASA Student Airborne Research Program summer intern, 2019 (James Campbell).
9. Alaska Space Grant Fellowship, 2019-2020, \$5,000 (James Campbell).
10. Undergraduate Research & Scholarly Activity Fellowship, 2020, \$2,500 (Lahra Weber).

Research Advisees

Postdoc: Yiqi Zheng (2019-), Jingyi Li (NOAA GFDL, 2014-2016)

Graduate Student: James Campbell (2020-), Tianlang Zhao (2019-), Sujai Banerji (2018-), Ragen Davey (2017-2020), Julia Hnilicka (EEOP intern, 2019-2020), Zak Tourville (2018-2019).

Undergraduate student: Lahra Weber (2020-), Paul Lin (NSF REU, 2020-), Hailee Brown (EEOP intern, UAF, 2020), Nicole June (NSF REU, 2019-2020), James Campbell (2018-2020), Jack DeCorso (2018), Nicholas Hasson (2018), Kiersten Johnson (2017-2018)

Graduate Committee

Meeta Cesler-Maloney (UAF, PhD committee, 2019-), Julia Hnilicka (UAF, MS committee, 2019-2020) Akila Sampath (UAF, PhD committee, 2017-2019), William Swanson (UAF, PhD committee, 2017-),

Abdul Kadir (UAF, PhD committee, 2017-2019), Kenneth Christian (Penn State University, PhD committee, 2014-2017)

Publications (Web of Science citations: **3633**, Google scholar: **5012**, H-index: 33(WoS), 38(GS))
[\[citations from GS\]](#)

*denotes research advisees

Peer-reviewed

63. **Nicole June***, Xuan Wang, L.-W. Antony Chen, Judy Chow, John Watson, Xiaoliang Wang, **Jingqiu Mao**, Observational constraints on ambient brown carbon with IMPROVE network observations, *Geophysical Research Letters*, 47, <https://doi.org/10.1029/2020GL090332>. [1]
62. **Zheng, Y. ***, Thornton, J. A., Ng, N. L., Cao, H., Henze, D. K., McDuffie, E. E., Hu, W., Jimenez, J. L., Marais, E. A., Edgerton, E., and **Mao, J.**: Long-term observational constraints of organic aerosol dependence on inorganic species in the southeast US, *Atmos. Chem. Phys.*, <https://doi.org/10.5194/acp-2020-575>, 2020.
61. Larry Horowitz, Vaishali Naik, Fabien Paulot, Paul Ginoux, John Dunne, **Jingqiu Mao**, Jordan Schnell, Xi Chen, Jian He, Meiyun Lin, Pu Lin, Sergey Malyshev, David Paynter, Elena Shevliakova, Ming Zhao: The GFDL Global Atmospheric Chemistry-Climate Model AM4.1: Model Description and Simulation Characteristics. *Journal of Advances in Modeling Earth Systems*, 2020. [4]
60. Baublitz, C. B., Fiore, A. M., Clifton, O. E., **Mao, J.**, **Li, J. ***, Correa, G., Sensitivity of Tropospheric Ozone Over the Southeast USA to Dry Deposition. *Geophysical Research Letters*, 47(7), 2020. [1]
59. Meskhidze, N., Voelker, C., ... **Mao., J.**, and coauthors, Perspective on Identifying and Characterizing the Processes Controlling Iron Speciation and Residence Time at the Atmosphere-Ocean Interface, *Marine Chemistry*, 2019. [9]
58. Schmale J., S. Arnold, K.S. Law, T. Thorp, S. Anenberg, W.R. Simpson, **J. Mao**, K.A. Pratt: Local Arctic air pollution: A neglected but serious problem, *Earth's Future*, 2018. [15]
57. Brune, W. H., Ren, X., Zhang, L., **Mao, J.**, Miller, D. O., and coauthors: Atmospheric Oxidation in the Presence of Clouds during the Deep Convective Clouds and Chemistry (DC3) Study, *Atmos. Chem. Phys.*, 2018. [3]
56. Schnell, J. L., Naik, V., Horowitz, L. W., Paulot, F., **Mao, J.**, Ginoux, P., Zhao, M., and Ram, K.: Exploring the relationship between surface PM2.5 and meteorology in Northern India, *Atmos. Chem. Phys.*, 2018. [18]
55. Christian, K. E., Brune, W. H., **Mao, J.**, and Ren, X.: Global sensitivity analysis of GEOS-Chem modeled ozone and hydrogen oxides during the INTEX campaigns, *Atmos. Chem. Phys.*, 2018. [7]
54. **Li, J. ***, **Mao, J.**, Fiore, A. M., Cohen, R. C., Crouse, J. D., Teng, A. P., Wennberg, P. O., and coauthors: Decadal change of summertime reactive nitrogen species and surface ozone over the Southeast United States, *Atmos. Chem. Phys.*, 2018. [22]
53. **Mao, J.**, Carlton, A., Cohen, R. C., Brune, W. H., Jimenez, J. L., Pye, H. O. T., Ng, N. L., McDonald, B., Warneke, C., de Gouw, J., and coauthors: Southeast Atmosphere Studies: learning from model-observation syntheses, *Atmos. Chem. Phys.*, 2018. [22]
52. Prather, M. J., Zhu, X., Flynn, C. M., Strode, S. A., Rodriguez, J. M., Steenrod, S. D., Liu, J., Lamarque, J.-F., Fiore, A. M., Horowitz, L. W., **Mao, J.**, Murray, L. T., Shindell, D. T., and Wofsy, S. C.: Global Atmospheric Chemistry – Which Air Matters, *Atmos. Chem. Phys.*, 2017. [19]
51. **Mao, J.**, Fan, S., and Horowitz, L. W.: Soluble Fe in Aerosols Sustained by Gaseous HO₂ Uptake, *Environ. Sci. Technol. Let.*, 2017. [11]

50. Christian, K. E., Brune, W. H., and **Mao, J.**: Global sensitivity analysis of the GEOS-Chem chemical transport model: ozone and hydrogen oxides during ARCTAS (2008), *Atmos. Chem. Phys.*, 2017. [15]
49. Nicely, J. M., Salawitch, R. J., Canty, T., Anderson, D. C., Arnold, S. R., Chipperfield, M. P., Emmons, L. K., Flemming, J., Huijnen, V., Kinnison, D. E., Lamarque, J.-F., **Mao, J.**, Monks, S. A., Steenrod, S. D., Tilmes, S., and Turquety, S.: Quantifying the causes of differences in tropospheric OH within global models, *J. Geophys. Res.*, 2017. [22]
48. Ng, N. L., Brown, S. S., and coauthors including **Mao, J.**,: Nitrate radicals and biogenic volatile organic compounds: oxidation, mechanisms, and organic aerosol, *Atmos. Chem. Phys.*, 2017. [149]
47. **Li, J. ***, **J. Mao**, R. A. Washenfelder, S. S. Brown, J. Kaiser, F. N. Keutsch, R. Volkamer, G. M. Wolfe and coauthors, Observational constraints on glyoxal production from isoprene oxidation and its contribution to organic aerosol over the Southeastern United States, *J. Geophys. Res.*, 2016. [32]
46. Nicely J., and many others including **J. Mao.**, An Observationally Constrained Evaluation of the Oxidative Capacity in the Tropical Western Pacific Troposphere, *J. Geophys. Res.*, 2016. [17]
45. M. C. Barth, M. M. Bela, A. Fried, P. O. Wennberg, J. D. Crouse, J. M. St. Clair, N. J. Blake, D. R. Blake, C. R. Homeyer, W. H. Brune, L. Zhang, **J. Mao**, X. Ren, and coauthors, Convective Transport and Scavenging of Peroxides by Thunderstorms Observed over the Central U.S. during DC3, *J. Geophys. Res.*, 2016. [21]
44. Wolfe, G. M., J. Kaiser, T. F. Hanisco, F. N. Keutsch, J. A. de Gouw, J. Gilman, M. Graus, C. D. Hatch, J. Holloway, L. Horowitz, B. H. Lee, B. Lerner, F. Lopez-Hilifiker, **J. Mao**, and coauthors, Formaldehyde production from isoprene oxidation across NO_x regimes, *Atmos. Chem. Phys.*, 2016. [76]
43. Paulot, F., P. Ginoux, W. F. Cooke, L. J. Donner, S. Fan, M. Lin, **J. Mao**, V. Naik, and L. W. Horowitz, Sensitivity of nitrate aerosols to ammonia emissions and to nitrate chemistry: implications for present and future nitrate optical depth, *Atmos. Chem. Phys.*, 2016. [54]
42. Fisher, J., D. Jacob, and coauthors including **J. Mao**, "Organic nitrate chemistry and its implications for nitrogen budgets in an isoprene- and monoterpene-rich atmosphere: constraints from aircraft (SEAC4RS) and ground-based (SOAS) observations in the Southeast US", *Atmos. Chem. Phys.*, 2016. [100]
41. Warneke C., M., Trainer, J.A., de Gouw, **J. Mao**, and coauthors: Instrumentation and Measurement Strategy for the NOAA SENEX Aircraft Campaign as Part of the Southeast Atmosphere Study 2013, *Atmos. Meas. Tech.*, 2016. [52]
40. Nault, B. A. Nault, C. Garland, P. J. Wooldridge, D. R. Blake, W. H. Brune, **J. Mao**, R. C. Cohen and coauthors, Observational constraints on the oxidation of NO_x in the upper troposphere, *J. Phys. Chem. A*, 2015. [18]
39. Fu, T., Y. Zheng, F. Paulot, **J. Mao**, and R. M. Yantosca: Sensitivity of Southeast U.S. surface ozone to large-scale warming is positive but variable, *Nature Climate Change*, 2015. [41]
38. Arnold, S.R., L.K. Emmons, S.A. Monks, K.S. Law, D.A. Ridley, S. Turquety, S. Tilmes, J.L. Thomas, I. Bouarar, J. Flemming, V. Huijnen, **J. Mao**, and coauthors: Biomass burning influence on high latitude tropospheric ozone and reactive nitrogen in summer 2008: a multi-model analysis based on POLMIP simulations, *Atmos. Chem. Phys.*, 2015. [43]
37. Emmons, L. K., Arnold, S. R., Monks, S. A., **J. Mao**, and coauthors: The POLARCAT Model Intercomparison Project (POLMIP): overview and evaluation with observations, *Atmos. Chem. Phys.*, 2015. [69]
36. Monks, S.A., S.R. Arnold, L.K. Emmons, K.S. Law, S. Turquety, B.N. Duncan, J. Flemming, V. Huijnen, S. Tilmes, J. Langner, **J. Mao**, and coauthors: Multi-model study of chemical and physical

- controls on transport of anthropogenic and biomass burning pollution to the Arctic, *Atmos. Chem. Phys.*, 2015. [67]
35. Fischer, E.V., D. J. Jacob, R. M. Yantosca, M. P. Sulprizio, D. B. Millet, **J. Mao**, F. Paulot, H. B. Singh, A. Roiger, L. Ries, R. W. Talbot, K. Dzepina, and S. Pandey Deolal, Atmospheric peroxyacetyl nitrate (PAN): a global budget and source attribution, *Atmos. Chem. Phys.*, 2014. [162]
 34. **Mao, J.**, F. Paulot, D. J. Jacob, R. C. Cohen, J. D. Crouse, P. O. Wennberg, C. A. Keller, R. C. Hudman, M. P. Barkley, and L. W. Horowitz, Ozone and organic nitrates over the eastern United States: sensitivity to isoprene chemistry, *J. Geophys. Res. Atmos.*, 2013. [183]
 33. Worton, D. R., J. D. Surratt, **J. Mao**, X. Ren, W. Brune, and coauthors, Observational Insights into Aerosol Formation from Isoprene, *Environ. Sci. Technol.*, 2013. [84]
 32. Naik, V., L. W. Horowitz, A. M. Fiore, P. Ginoux, **J. Mao**, A. M. Aghedo, and H. Levy, Impact of preindustrial to present-day changes in short-lived pollutant emissions on atmospheric composition and climate forcing, *J. Geophys. Res. Atmos.*, 2013. [89]
 31. Barkley, M. P., I. D. Smedt, M. Van Roozendaal, T. P. Kurosu, K. Chance, A. Arneth, D. Hagberg, A. Guenther, F. Paulot, E. Marais, and **J. Mao**, Top-down isoprene emissions over tropical South America inferred from SCIAMACHY and OMI formaldehyde columns, *J. Geophys. Res. Atmos.*, 2013. [75]
 30. Ren, X., D. van Duin, M. Cazorla, S. Chen, **J. Mao**, L. Zhang, W. H. Brune, J. H. Flynn, N. Grossberg, B. L. Lefer, B. Rappenglück, and coauthors, Atmospheric oxidation chemistry and ozone production: Results from SHARP 2009 in Houston, Texas, *J. Geophys. Res. Atmos.*, 2013. [60]
 29. **Mao, J.**, L. W. Horowitz, V. Naik, S. Fan, J. Liu, and A. M. Fiore, Sensitivity of tropospheric oxidants to biomass burning emissions: implications for radiative forcing, *Geophys. Res. Lett.*, 2013. [28]
 28. **Mao, J.**, S.-M. Fan, D. J. Jacob, and K. R. Travis, Radical loss in the atmosphere from Cu-Fe redox coupling in aerosols, *Atmos. Chem. Phys.*, 2013. [112]
 27. **Mao, J.**, X. Ren, L. Zhang, D. M. Van Duin, R. C. Cohen, J. H. Park, A. H. Goldstein, F. Paulot, M. R. Beaver, J. D. Crouse, P. O. Wennberg, J. P. DiGangi, S. B. Henry, F. N. Keutsch, C. Park, G. W. Schade, G. M. Wolfe, J. A. Thornton, and W. H. Brune, Insights into hydroxyl measurements and atmospheric oxidation in a California forest, *Atmos. Chem. Phys.*, 2012. [181]
 26. Lin, J. T., Z. Liu, Q. Zhang, H. Liu, **J. Mao**, and G. Zhuang, Modeling uncertainties for tropospheric nitrogen dioxide columns affecting satellite-based inverse modeling of nitrogen oxides emissions, *Atmos. Chem. Phys.*, 2012. [58]
 25. Olson, J. R., J. H. Crawford, W. Brune, **J. Mao**, and coauthors, An analysis of fast photochemistry over high northern latitudes during spring and summer using in-situ observations from ARCTAS and TOPSE, *Atmos. Chem. Phys.*, 2012. [27]
 24. Ren, X., **J. Mao**, W. H. Brune, C. A. Cantrell, R. L. Mauldin Iii, R. S. Hornbrook, E. Kosciuch, J. R. Olson, J. H. Crawford, G. Chen, and H. B. Singh, Airborne intercomparison of HOx measurements using laser-induced fluorescence and chemical ionization mass spectrometry during ARCTAS, *Atmos. Meas. Tech.*, 2012. [22]
 23. Marais, E. A., D. J. Jacob, T. P. Kurosu, K. Chance, J. G. Murphy, C. Reeves, G. Mills, S. Casadio, D. B. Millet, M. P. Barkley, F. Paulot, and **J. Mao**, Isoprene emissions in Africa inferred from OMI observations of formaldehyde columns, *Atmos. Chem. Phys.*, 2012. [123]
 22. Fischer, E. V., D. J. Jacob, D. B. Millet, R. M. Yantosca, and **J. Mao**, The role of the ocean in the global atmospheric budget of acetone, *Geophys. Res. Lett.*, 2012. [82]
 21. Wang, Q., D. J. Jacob, J. A. Fisher, **J. Mao**, E. M. Leibensperger, C. C. Carouge, P. Le Sager, Y.

- Kondo, J. L. Jimenez, M. J. Cubison, and S. J. Doherty, Sources of carbonaceous aerosols and deposited black carbon in the Arctic in winter-spring: implications for radiative forcing, *Atmos. Chem. Phys.*, 2011. [190]
20. Barkley, M., P. I. Palmer, L. Ganzeveld, A. Arneth, D. Hagberg, T. Karl, A. Guenther, F. Paulot, P. O. Wennberg, **J. Mao**, T. P. Kurosu, K. Chance, J. F. Müller, I. De Smedt, M. Van Roozendael, D. Chen, Y. Wang, and R. M. Yantosca, Can a "state of the art" chemistry transport model simulate Amazonian tropospheric chemistry?, *J. Geophys. Res.*, 2011. [48]
19. Huisman, A. J., J. R. Hottle, M. M. Galloway, J. P. DiGangi, K. L. Coens, **J. Mao**, W. H. Brune, F. N. Keutsch and coauthors, Photochemical modeling of glyoxal at a rural site: observations and analysis from BEARPEX 2007, *Atmos. Chem. Phys.*, 2011. [38]
18. Fried, A., C. Cantrell, W. H. Brune, **J. Mao**, X. Ren, and coauthors, Detailed comparisons of airborne formaldehyde measurements with box models during the 2006 INTEX-B and MILAGRO campaigns: potential evidence for significant impacts of unmeasured and multi-generation volatile organic carbon compounds, *Atmos. Chem. Phys.*, 2011. [28]
17. Browne, E. C., A. E. Perring, P. J. Wooldridge, E. Apel, S. R. Hall, L. G. Huey, **J. Mao**, K. M. Spencer, J. M. S. Clair, A. J. Weinheimer, A. Wisthaler, and R. C. Cohen, Global and regional effects of the photochemistry of CH₃O₂NO₂: evidence from ARCTAS, *Atmos. Chem. Phys.*, 2011. [38]
16. Wolfe, G. M., J. A. Thornton, N. C. Bouvier-Brown, A. H. Goldstein, J. H. Park, M. McKay, D. M. Matross, **J. Mao**, W. H. Brune, F. N. Keutsch and coauthors, The Chemistry of Atmosphere-Forest Exchange (CAFE) Model – Part 2: Application to BEARPEX-2007 observations, *Atmos. Chem. Phys.*, 2011. [56]
15. Holmes, C. D., D. J. Jacob, E. S. Corbitt, **J. Mao**, X. Yang, R. Talbot, and F. Slemr, Global atmospheric model for mercury including oxidation by bromine atoms, *Atmos. Chem. Phys.*, 2010. [353]
14. Alvarado, M. J., J. A. Logan, **J. Mao**, and coauthors, Nitrogen oxides and PAN in plumes from boreal fires during ARCTAS-B and their impact on ozone: an integrated analysis of aircraft and satellite observations, *Atmos. Chem. Phys.*, 2010. [156]
13. Choi, W., I. C. Faloona, N. C. Bouvier-Brown, M. McKay, A. H. Goldstein, **J. Mao**, W. H. Brune, B. W. LaFranchi, R. C. Cohen, G. M. Wolfe, J. A. Thornton, D. M. Sonnenfroh, and D. B. Millet, Observations of elevated formaldehyde over a forest canopy suggest missing sources from rapid oxidation of arboreal hydrocarbons, *Atmos. Chem. Phys.*, 2010. [35]
12. Singh, H. B., B. E. Anderson, D. J. Jacob, **J. Mao**, and coauthors, Pollution influences on atmospheric composition and chemistry at high northern latitudes: Boreal and California forest fire emissions, *Atmos. Environ.*, 2010. [117]
11. Ren, X., H. Gao, X. Zhou, J. D. Crouse, P. O. Wennberg, E. C. Browne, B. W. LaFranchi, R. C. Cohen, M. McKay, A. H. Goldstein, and **J. Mao**: Measurement of atmospheric nitrous acid at Blodgett Forest during BEARPEX2007, *Atmos. Chem. Phys.*, 2010. [46]
10. **Mao, J.**, D. J. Jacob, M. J. Evans, J. R. Olson, X. Ren, W. H. Brune, and coauthors, Chemistry of hydrogen oxide radicals (HO_x) in the Arctic troposphere in spring, *Atmos. Chem. Phys.*, 2010. (Featured in Nature News & Views, "Atmospheric chemistry: A missing sink for radicals", *Nature*, 466, 925-926, 2010) [158]
9. **Mao, J.**, X. Ren, S. Chen, W. H. Brune, Z. Chen, M. Martinez, H. Harder, B. Lefer, B. Rappenglück, and J. Flynn: Atmospheric oxidation capacity in the summer of Houston 2006: Comparison with Summer Measurements in Other Metropolitan Studies, *Atmos. Environ.*, 2010. [190]
8. Chen, S., X. Ren, **J. Mao**, Z. Chen, W. H. Brune, B. Lefer, B. Rappenglück, J. Flynn, J. Olson, and J. H. Crawford, A comparison of chemical mechanisms based on TRAMP-2006 field data, *Atmos.*

- Environ.*, 2010. [75]
7. Flynn, J., B. Lefer, B. Rappengluck, M. Leuchner, R. Perna, J. Dibb, L. Ziemba, C. Anderson, J. Stutz, W. Brune, X. Ren, **J. Mao**, W. Luke, J. Olson, G. Chen, and J. Crawford, Impact of clouds and aerosols on ozone production in Southeast Texas, *Atmos. Environ.*, 2010. [42]
 6. LaFranchi, B. W., G. M. Wolfe, X. Ren, **J. Mao**, R. C. Cohen and coauthors, Closing the peroxy acetyl nitrate budget: observations of acyl peroxy nitrates (PAN, PPN, and MPAN) during BEARPEX 2007, *Atmos. Chem. Phys.*, 2009. [92]
 5. **Mao, J.**, X. Ren, W. H. Brune, J. R. Olson, J. H. Crawford, A. Fried, L. G. Huey, R. C. Cohen, B. Heikes, H. B. Singh, D. R. Blake, G. W. Sachse, G. S. Diskin, S. R. Hall, and R. E. Shetter: Airborne measurement of OH reactivity during INTEX-B, *Atmos. Chem. Phys.*, 2009. [190]
 4. Ren, X. R., J. R. Olson, J. H. Crawford, W. H. Brune, **J. Mao**, and coauthors, HO_x chemistry during INTEX-A 2004: Observation, model calculation, and comparison with previous studies, *J. Geophys. Res.*, 2008. [161]
 3. Venkatachari, P., P. K. Hopke, W. H. Brune, X. Ren, R. Leshner, **J. Mao**, and M. Mitchell, Characterization of Wintertime Reactive Oxygen Species Concentrations in Flushing, New York, *Aerosol. Sci. Technol.*, 2007. [94]
 2. Ren, X. R., W. H. Brune, **J. Mao**, M. J. Mitchell, R. L. Leshner, J. B. Simpas, A. R. Metcalf, J. J. Schwab, C. X. Cai, Y. Q. Li, K. L. Demerjian, H. D. Felton, G. Boynton, A. Adams, J. Perry, Y. He, X. L. Zhou, and J. Hou, Behavior of OH and HO₂ in the winter atmosphere in New York city, *Atmos. Environ.*, 2006. [129]
 1. Shirley, T. R., W. H. Brune, X. Ren, **J. Mao**, R. Leshner, B. Cardenas, R. Volkamer, L. T. Molina, M. J. Molina, B. Lamb, E. Velasco, T. Jobson, and M. Alexander, Atmospheric oxidation in the Mexico City Metropolitan Area (MCMA) during April 2003, *Atmos. Chem. Phys.*, 2006. [183]

Non-Peer reviewed

4. **Mao, J., Y. Zheng**, "UAF GEOS-Chem model support for the Regional Haze State Implementation Plan", final report submitted to Alaska Department of Environmental Conservation, 2019.
3. **Mao, J.**, A.M. Carlton, L. W. Horowitz and coauthors, "Southeast Atmosphere Studies Workshop 2015", IGAC Newsletter, 2015.
2. Alvarado, M., **J. Mao**, and coauthors (2015) : Advancing atmospheric chemistry through the use of satellite observations from the cross-track infrared sounder (CrIS), Report of the CrIS Atmospheric Chemistry Data User's workshop, NOAA Program Office, doi:10.7289/V50V89SS.
1. **Mao, J.**, C. Carouge, M. Evans, and D. Millet (2009): GEOS-Chem Chemical Mechanism v 8-02-04.

Selected Talks, Seminars and Presentations in past three years

25. **Jingqiu Mao, Tianlang Zhao**, William R. Simpson, "Constraining biogenic volatile organic compound emissions at northern high latitude: an integrated satellite, ground, and model perspective", NASA TOLNet/Pandora Science Team Workshop, June, 2020. (Talk)
24. **Nicole June**, Xuan Wang, L.-W. Antony Chen, Judy Chow, John Watson, Xiaoliang Wang, Barron Henderson, Yiqi Zheng, **Jingqiu Mao**, "Observational constraints on ambient brown carbon with IMPROVE network observations", American Meteorological Society meeting, 2020. (Poster)
23. **Yiqi Zheng, Jingqiu Mao**, Joel Thornton, Nga Lee Ng, Erin McDuffie, Jose Jimenez, Eloise Marais, Hansen Cao, "Revisiting the anthropogenic impacts on biogenic secondary organic aerosol in southeast US", AGU Fall meeting, San Francisco, 2019. (Talk)

22. **Ragen Davey**, James Campbell, Rodney Weber, **Jingqiu Mao**, “Characterizing Wintertime Aerosol Composition and Sulfate Formation, Fairbanks, Alaska”, AGU Fall meeting, San Francisco, 2019. (Talk)
21. **Jingqiu Mao**, Nicole June, Xuan Wang, L.-W. Antony Chen, Judy Chow, John Watson, Xiaoliang Wang, “Observational constraints on ambient brown carbon with IMPROVE network observations”, AGU Fall meeting, San Francisco, 2019. (**Invited talk**)
20. **Jingqiu Mao**, Julia Hnilicka, Mansel Nelson “Purple Air network in Alaska to monitor wildfire smoke”, NW-AIRQUEST / Northwest Regional Modeling Consortium, October 3, 2019. (Talk)
19. **Nicole June**, Xuan Wang, L.-W. Antony Chen, Judy Chow, John Watson, Xiaoliang Wang, **Jingqiu Mao**, “Observational constraints on ambient brown carbon with IMPROVE network observations”, Gordon Research Conference, Newry, ME, 08/2019. (Poster)
18. **Jingqiu Mao**, “Atmospheric Chemistry in Arctic”, UAF REU program lecture, July 8, 2019. (Talk)
17. **Ragen Davey**, James Campbell, Rodney Weber, **Jingqiu Mao**, “Characterizing Wintertime Aerosol Composition and Sulfate Formation, Fairbanks, Alaska”, ACS National Meeting, San Diego, CA, 2019. (Talk)
16. **Jingqiu Mao**, “Atmospheric Chemistry in Arctic”, Nanjing University of Information Science and Technology, Nanjing, China, May, 2019. (Talk)
15. **Jingqiu Mao**, “Ground validation of satellite HCHO measurements at northern high latitudes”, Alaska Space Grant and NASA EPSCoR Education and Research Symposium, April 12th, 2019. (Talk)
14. **Jingqiu Mao**, “Atmospheric Chemistry of Fairbanks Air Pollution”, UAF Osher Lifelong Learning Institute lecture, Feb 26, 2019. (Talk)
13. **Jingqiu Mao**, Sujai Banerji, Jack DeCorso, William R. Simpson, William Swanson, Joseph Robinson, Lena Shalaby, Robert J. Swap, Gonzalo Gonzalez Abad, Caroline R Nowlan, Martin Tiefengraber, Moritz Müller, and Alexander Cede, “Ground validation of satellite HCHO measurements at northern high latitudes”, AGU Fall meeting, 2018. (Poster)
12. **Jingqiu Mao**, William Simpson, Kerri Pratt, Julia Schmale, Kathy Law, Steve Arnold, “Alaska Pollution and Chemical Analysis (ALPACA) science and status report”, IARPC staff meeting, 08/2018. (Webinar, **Invited**)
11. **Jingqiu Mao**, “The role of Cu in Fe redox cycling in ambient aerosols”, Telluride Iron workshop, Telluride, CO, 07/2018. (**Invited talk**)
10. **Jingqiu Mao**, William Simpson, Kerri Pratt, Julia Schmale, Kathy Law, Steve Arnold, “ALaskan Pollution and Chemical Analysis (ALPACA) project”, NSF PI meeting, Boulder, CO, 05/2018. (poster)
9. **Jingqiu Mao**, “Interaction between biogenic and anthropogenic emissions”, Institute of Atmospheric Physics, Beijing, China, 12/2017. (**Invited talk**)
8. **Jingqiu Mao**, “New directions in Arctic atmospheric chemistry research”, State Key Laboratory on Cryospheric Sciences, Lanzhou, China, 12/2017. (**Invited talk**)
7. **Jingqiu Mao**, “Reconciling ozone biases in AM3 and GEOSChem models”, Ozone dry deposition workshop, Lamont-Doherty Earth Observatory, New York, 10/2017. (poster)
6. **Jingqiu Mao**, Jingyi Li, Arlene M. Fiore, Ronald C. Cohen, John D. Crounse, Alex P. Teng, Paul O. Wennberg, Ben H. Lee, Felipe D. Lopez-Hilfiker, Joel A. Thornton, Jeff Peischl, Ilana B. Pollack, Thomas B. Ryerson, Patrick Veres, James M. Roberts, J. Andrew Neuman, John B. Nowak, Glenn M. Wolfe, Thomas F. Hanisco, Alan Fried, Hanwant B. Singh, Jack Dibb, Fabien Paulot, Larry W. Horowitz, “Decadal change of reactive nitrogen species and surface ozone over the Southeast United States”, Gordon Research Conference, Newry, ME, 08/2017. (Poster)

5. **Jingqiu Mao**, Sebastian Eastham, Robert Yokelson, Chris Holmes, Chantelle Lonsdale, Matthew Alvarado, “Issues of modeling fire plumes”, ACCORD Fire Data analysis workshop, Boulder, CO, 07/2017. (**Invited talk**)
4. **Jingqiu Mao**, Dylan Millet, “Decadal trend of Arctic biogenic VOC emissions”, PACES workshop, Victoria, Canada, 06/2017. (Talk)
3. **Jingqiu Mao**, “Two tales of chemistry-climate interaction”, Atmospheric Sciences Informal Seminar, UAF, Fairbanks, AK, 04/2017. (Talk)
2. **Jingqiu Mao**, Jingyi Li, Ronald Cohen, John Crounse, Paul O. Wennberg, Ilana B. Pollack, Thomas B. Ryerson, Patrick Veres, James M. Roberts, Andy Newman, Glenn Wolfe, Thomas F. Hanisco, Fabien Paulot, Larry Horowitz, “Decadal change of reactive nitrogen species and surface ozone over the Southeast United States”, AGU Fall meeting, San Francisco, CA, USA, 12/2016. (Poster)
1. **Jingqiu Mao**, Jingyi Li, Kyung-Eun Min, Steve Brown, Rebecca Washenfelder, Glenn Wolfe, Frank Keutsch, Thomas Hanisco, John Crounse, Paul Wennberg, Armin Wisthaler, Larry Horowitz, “Modeling Uncertainties in Gas-Phase Chemistry of Isoprene-SOA Precursors”, Atmospheric chemical mechanism meeting, Davis, California, 12/2016. (**Invited talk**)

Professional Service

IPCC AR6 Expert Reviewer for the Working Group I (WGI) contribution (2019).

Co-lead organizer for the ALaskan Pollution and Chemical Analysis (ALPACA) project (held at Fairbanks, AK in May of 2018)

Co-Chair of GEOS-Chem Oxidants and Chemistry working group /Steering Committee (2011-2015, 2017-)

Steering Committee for Investigation of Multiscale Processes Affecting Atmospheric Chemical Transport (IMPAACT) study (2017-2019)

Panelist for NSF-sponsored Long-term chemical flux measurement workshop (2017)

Lead organizer for Southeast Atmosphere Studies Modeling workshop (held at NOAA GFDL, 2015)

Promotion reviewer for NASA

Journal reviewer for a number of journals

Proposal reviewer for NASA (3 panels), NOAA (2 panels, ad-hoc), EPA (1 panel), NSF (3 panels, ad-hoc), UK NERC (ad-hoc)

University Activities

Co-lead organizer for the Environmental Chemistry Symposium (2017, 2018, 2019)

Judge for Research and Creative Activity Day (2019)

Judge for the Interior Alaska Science Fair (2019)

Judge for Alaska statewide high school science symposium (ASHSSS) (2018, 2019, 2020)

Fairbanks Air Quality Stakeholders group (2017-2019)

Instructor for UAF Osher Lifelong Learning Institute (OLLI) (2019)

Field Experience

SENEX(2013), DC3(2012), BEARPEX II(2009), ARCTAS(2008), BEARPEX (2007), TRAMP(2006), INTEX-B (2006), HOXCOMP(2005), INTEX-A (2004), PMTACS-NY (2004), UCR-CHAMBER(2003), MCMA (2003)