# Steven S. Brown | Curriculum Vitae

NOAA Chemical Sciences Laboratory (CSL)
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## Education

Ph.D., University of Wisconsin, Madison, WI, 1996; Advisor: F. Fleming Crim
B.A., Dartmouth College, Hanover, NH, 1989; Summa Cum Laude, Phi Beta Kappa

## Professional Experience

September 2019-present: Tropospheric Chemistry Program Lead, NOAA CSL
December 2022-present: Atmospheric Remote Sensing Program Lead, NOAA CSL
October 2005-present: Federal Research Chemist, NOAA CSL
June 2014-present: Adjoint Professor of Chemistry, University of Colorado
October 2000-September 2005: Research Scientist, NOAA Aeronomy Laboratory, and Cooperative Institute for Research in the Environmental Sciences, University of Colorado
October 1997-September 2000: National Research Council Senior Research Fellow with Dr. A. R. Ravishankara, NOAA Aeronomy Laboratory

## Honors and Awards

Fellow of the American Association for Advancement of Science, 2023
Fellow of the American Geophysical Union, 2022
Colorado Governor's Award for High Impact Research, 2022
Boulder County Healthy Community Award, 2022
NOAA Bronze Medal Award (Highest level granted by the Undersecretary for Oceans and Atmospheres), 2020, 2018
NOAA Office of Atmospheric Research, Best Scientific Paper Award, 2017
Harold I. Schiff Lecture, York University, Toronto, Ontario, 2015
Colorado Governor's Award for High Impact Research, 2014
McElvain Lecture, University of Wisconsin, 2013
CIRES Outstanding Performance Award, University of Colorado, 2003
Presidential Early Career Award for Scientists and Engineers, White House Office of Science and Technology Policy, 2002
National Research Council Post-Doctoral Fellowship, 1997-2000
Proctor & Gamble Fellowship, University of Wisconsin, 1994 – 1995
National Science Foundation Predoctoral Fellowship, 1991-1994
University of Wisconsin University Fellowship, 1990-1991
Samuel M. McElvain Fellowship, University of Wisconsin, 1990
Elden Bennett Hartshorn Medal & AIC Award, Dartmouth College, 1989

## Professional Affiliations

American Geophysical Union (AGU)
European Geophysical Union (EGU)
Royal Society of Chemistry (RSC)
American Chemical Society (ACS)
American Association for the Advancement of Science (AAAS)
American Meteorological Society (AMS)

## Field Study Principal Investigator or Lead Scientist

Co-Principal Investigator (with Caroline Womack), Utah Summer Ozone Study, CSL Mobile Laboratory & Twin Otter Aircraft, Utah, 2024

Coordinating Lead Scientist, Atmospheric Emissions and Reactivity Observed from Megacities to Marine Areas (AEROMMA, NASA DC-8) and Coastal Urban Plume Dynamics Study (CUPiDS, NOAA Twin Otter), 2023

Lead Scientist (with Alan Brewer), California Fire Dynamics Experiment (CalFiDE), Twin Otter aircraft deployment in California, 2022.

Co-Principal Investigator (with Carsten Warneke, Brian McDonald and Jessica Gilman), Southwest Urban $NO_x$ and VOC Experiment (SUNVEx), Las Vegas, NV and Los Angeles, CA, June – September 2021

Lead Scientist, NOAA Twin Otter Aircraft Deployment, NOAA-NASA FIREX-AQ, Boise, Idaho, July – September 2019

Lead Scientist, Utah Winter Fine Particulate Study (UWFPS), NOAA Twin Otter aircraft study in Salt Lake City, Utah, January-February 2017

Co-Principal Investigator (with Joel Thornton, University of Washington), Wintertime Investigation of Emissions, Transport and Reactivity (WINTER), NSF C-130 Aircraft, Langley, Virginia, February – March 2015

Lead Scientist, NOAA Boulder Atmospheric Observatory Measurements from a Tall Tower during the Front Range Air Pollution and Photochemistry Experiment (FRAPPE) / Deriving Information on Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality (DISCOVER-AQ), Weld County CO, July – August 2014

Lead Scientist (with Tao Wang, Hong Kong Polytechnic University), Nighttime Chemistry at a High-Altitude Site in China, Tai Mo Shan Observatory, Hong Kong China, Mountaintop measurements, November – December 2013

Lead Scientist, Nitrogen Oxides, Aerosols and Halogens on a Tall Tower (NACHTT), field campaign, Weld County CO, February – March 2011

Lead Scientist, Activation of Continental Chloride by Reactive Oxides of Nitrogen in Midwinter (ACCRONIM), Boulder, CO, February 2009

Lead Scientist, Mesa Winter Experiment, Boulder, CO January – March 2005

## Field Study Participation

COVID Air Quality Study (COVID-AQS), Boulder CO, Ground Site, April – August 2020

Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ), Boise ID and Western U.S., NASA DC-8 Aircraft and NOAA Twin Otter Aircraft, July – September 2019

Validation of SAGE III / ISS Nighttime Measurements of $NO_3$ and $NO_2$, Table Mountain CA, Ground based and remote sensing measurements, October 2019 - October 2021

$NO_3$ Isoprene Campaign, SAPHIR Environmental Simulation Chamber, Julich, Germany, July – August 2018

Fires, Asian and Stratospheric Transport – Las Vegas Ozone Study (FAST-LVOS), Las Vegas NV, NOAA mobile laboratory, May – June 2017

Study of Indoor Air Chemistry, Oakland CA, Ground based / indoor measurements, January 2017

FIREX FireLab, Missoula MT, Measurements at the Fire Sciences Laboratory, October – November, 2016

Pilot Study on Winter Air Quality, Salt Lake City UT, Ground based measurements, December 2015 - February 2016

Megacity Air Pollution Study, Seoul South Korea, Measurements from the Seoul Tower, May – June 2015

Shale Oil and Natural Gas Nexus (SONGNex), Broomfield CO and Oil and Gas Producing Regions across the Western U.S., NOAA P-3 Aircraft, March – April 2015

Campaigns of Air Pollution Research in Megacity Beijing and North China Plain (CARE-Beijing NCP), Ground based measurements, Wangdu China, July – September 2014

Utah Winter Ozone Studies (UBWOS), Uintah Basin UT, Ground based and NOAA mobile laboratory, January – February 2012, 2013, 2014 (3 separate deployments / years)
Studying the Interactions Between Natural and Anthropogenic Emissions and the Nexus of Climate Change and Air Quality (Southeast Nexus, SENEX), NOAA P-3 Aircraft and Ground based measurements, Smyrna TN and Centreville AL, July – August 2013
Summer Ozone Near Natural gas Emissions (SONNE), Ground based measurements, Weld County CO, July – August 2012
The Fourth Fire Lab at Missoula Experiment (FLAME-IV), Measurements at the Fire Sciences Laboratory, October 2012
Rocky Mountain Biogenic Aerosol STudy (BEACHON-RoMBAS), Manitou Springs CO, Ground based measurements, July – August 2011
Research at the Nexus of Air Quality and Climate Change, California Nexus (CalNex), NOAA-P3 aircraft, Pasadena CA ground site, Research Vessel Atlantis, May – July 2010
International Chemistry Experiment in the Arctic LOwer Troposphere (ICEALOT), North Atlantic Ocean, measurements on Research Vessel Knorr, March – April 2008
$NO_3$ Intercomparison Experiment, SAPHIR Environmental Simulation Chamber, Julich, Germany, July 2007
Texas Air Quality Study – Gulf of Mexico Atmospheric Composition and Climate Study (TexAQS / GoMACCS), Houston TX and Gulf of Mexico, NOAA P-3 aircraft and NOAA Research Vessel Ronald H. Brown, August – October 2006
New England Air Quality Study – Intercontinental Transport and Chemical Transformation (NEAQS-ITCT), Portsmouth NH and Gulf of Maine, NOAA P-3 aircraft and NOAA Research Vessel Ronald H. Brown, June – August 2004
New England Air Quality Study, Northeast U.S. and Gulf of Maine, NOAA Research Vessel Ronald H. Brown, July – August 2002.

## Conference Organization

Co-Chair, Telluride Workshop on New Directions in Gas Phase Atmospheric Chemistry, July 2024, Telluride CO
Organizer, Session on “Regional Air Quality”, 26$^{th}$ Conference on Atmospheric Chemistry at the American Meteorological Society meeting, Baltimore, MD January 2024
Organizer, Session on Urban Atmospheric Chemistry, American Chemical Society Meeting, San Francisco, CA, August 2023
Organizing Committee, Workshop on a Pilot Design for Air Quality in Africa, Kigali, Rwanda, January 2023
Organizer, Session on “Regional Air Quality”, 25$^{th}$ Conference on Atmospheric Chemistry at the American Meteorological Society meeting, Denver, CO, January 2023
Organizer, Session on “Regional Air Quality”, 24$^{th}$ Conference on Atmospheric Chemistry at the American Meteorological Society meeting, Houston, TX, January 2022
Organizer, Session on “Air Quality and Climate Impacts of Biomass Burning”, 23$^{rd}$ Conference on Atmospheric Chemistry at the American Meteorological Society meeting, Virtual Meeting, January 2021
Organizer, Session on “Air quality during the COVID-19 pandemic,” American Geophysical Union (AGU) Meeting, Virtual Meeting, December 2020
Organizer, Session on “Regional Air Quality”, 22$^{nd}$ Conference on Atmospheric Chemistry at the American Meteorological Society meeting, New Orleans, LA, January 2020
Chair and Organizer (with Gannet Hallar, Univeristy of Utah and Chris Cappa, University of California, Davis), Workshop on Air Quality Research in the Western United States, NSF and NOAA supported workshop to organize field work to address wintertime air quality, Salt Lake City, UT, September 2019
Chair (with Randall Goldsmith, University of Wisconsin and Gerard Wysocki, Princeton University), 13$^{th}$ International Symposium on Cavity Enhanced Spectroscopy, Madison, WI, June 2019

Organizer, Session on “Air Quality in Urban Airsheds during Winter,” American Geophysical Union (AGU) Meeting, New Orleans, LA, December 2017

Chair (with Professor Sally Ng, Georgia Tech), Special Symposium on the Effect of $NO_x$ and $SO_2$ on BVOC Oxidation and Organic Aerosol Formation, American Association for Aerosol Research Annual Conference, Portland, OR October 2016

Chair (with Professor Frank Keutsch, Harvard University), Symposium on Spectroscopy in Atmospheric Chemistry, International Symposium on Molecular Spectroscopy, Champaign-Urbana, IL, June 2016

Chair (with Dr. Rebecca Washenfelder, NOAA), 11$^{th}$ International Symposium on Cavity Enhanced Spectroscopy, Boulder, CO, June 2015

Chair (with Professor Sally Ng, Georgia Tech), IGAC Workshop on Nitrate Radicals and Biogenic Hydrocarbons, Atlanta, GA, June 2015

Organizing Committee, Conference on Light Energy and the Environment, Sponsored by the Optical Society of America, Canberra, Australia, December 2014

Chair (with Professor Yinon Rudich, Weizmann Institute of Science, Israel), Gordon Research Conference on Atmospheric Chemistry, Mt. Snow, VT, July 2013

Organized sessions at American Geophysical Union (AGU) Meetings, including “Wintertime Atmospheric Chemistry,” December 2015; “Air Quality in Asia”, December 2014; “Tropospheric Halogens: Sources, Multiphase Chemistry and Impacts, December 2011; “Day and Night Chemical Processing in Polluted Atmospheres,” December 2007.

Organized symposia at American Chemical Society (ACS) Meetings, including “Chemistry of Atmospheric Nitrogen Containing Compounds,” ACS National Meeting, San Francisco, CA, August 2014; “Atmospheric Chemistry and Climate,” ACS National Meeting, Boston, MA, August 2010.

## Committee and Editorial Service

Editorial Board Member, Environmental Science and Technology–Air, September 2023 - present

Editor, Atmospheric Chemistry and Physics, September 2013 – present

Journal reviewer within the last 5 years for Atmospheric Chemistry and Physics, Atmospheric Environment, Atmospheric Measurement Techniques, Analytical Chemistry, Elementa, Environmental Chemistry, Environmental Science & Technology, International Journal of Chemical Kinetics, Journal of Geophysical Research, Geophysical Research Letters, Journal of Physical Chemistry, Physical Chemistry Chemical Physics, Nature, Proceedings of the National Academy of Sciences, Reviews of Scientific Instruments, Science, Science of the Total Environment

Proposal Reviewer within the last 5 years for the Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Science Foundation (NSF), National Oceanic and Atmospheric Administration (NOAA), Research Corporation, University of California, Berkeley, Deutsche Forschungsgemeinschaft (DFG – German Research Foundation), EUOROCHAMP, Natural Environment Research Council (NERC, Great Britain)

Service on NSF & NASA review panels 2020, 2013, 2010, 2008

## Community Service & Outreach Activities

University of Colorado “Wizards” Public Lecture for Elementary Age Children, “There’s Something in the Air! ” December 2014, 2016, 2018, 2021, 2023

Colorado Regional Science Fair Judge, 2019

Science Fair Judge, Peak to Peak High School, 2008, 2009, 2010

## Mentorship of Post-Doctoral Fellows, Students and Hosting of Sabbatical Visitors

Current post-doctoral fellows and graduate students

Wyndom Chace, University of Colorado, Department of Chemistry

Michael Robinson, University of Colorado, Department of Chemistry

Previous Students and Post-Doctoral Fellows & Current Positions
Mattias Aldener (Scientist, FOI, Stockholm, Sweden)
Hans D. Osthoff (Professor, University of Calgary, Calgary, Canada)
Jonathan E. Flad (Professor, Ohio State University ATI, Wooster, Ohio, USA)
Hendrik Fuchs (Research Scientist, Forschungszentrum Jülich, Germany)
Roberto Sommariva (University of Leeds, UK)
Nicholas L. Wagner (Research Scientist, CIRES & NOAA CSL, now at Ball Aerospace)
Cora J. Young (Associate Professor, York University, Toronto, Ontario, Canada)
Tara F. Kahan, jointly with Veronica Vaida (Associate Professor, University of Saskatchewan, Canada)
Peter M. Edwards (Research Scientist, University of York, UK)
Alexis R. Atwood (Droplet Measurement Technologies, Boulder, CO)
Kyung-Eun Min (Professor, Gwangju Institute of Technology, Korea)
Robert J. Wild (University of Innsbruck, Austria)
Dorothy Fibiger (California Air Resources Board, Sacramento, CA)
Kyle Zarzana (Research Scientist, National Center for Atmospheric Research, Boulder, CO)
Caroline C. Womack (Federal Research Scientist, NOAA CSL)
Erin McDuffie (United States Environmental Protection Agency)
William P. Dubé (Engineer, Currently in Auckland, NZ)
Rebecca Washenfelder (Federal Research Scientist, NOAA CSL, now retired)
Jaime Green (Graduate Student, NCA&T, currently at University of North Carolina)
Zach Decker (Graduate student, currently post-doctoral fellow at Paul Scherer Institute)

Graduate Students Hosted & CU Thesis Advisors
Karl J. Feierabend (Veronica Vaida)
Daniel K. Havey (Veronica Vaida)
Ryan Thalman (Rainer Volkamer)
Kyle Zarzana (Maggie Tolbert)
Jessica Axson (Veronica Vaida)

Undergraduate Students Fellows and Home Institution
Maya R. Nunley, NOAA EPP Fellow from Clark Atlanta University, 2005
Thomal Langel, NOAA Hollings Fellow from the University of Wisconsin, 2010
Taylor Brownlee, NOAA Hollings Fellow from the University of Arizona, 2011
Reed Wommack, NOAA Hollings Fellow from Dartmouth College, 2013
Brigitte Rooney, NOAA Hollings Fellow from the University of Colorado, 2014
Maurice Roots, NOAA Hollings Fellow from Hampton University, 2018
Wyndom Chace, NOAA Hollings Fellow from Williams College, 2020
Nabiha Hassan, NOAA Hollings Fellow from UC Berkeley, 2022

Sabbatical Visitors
Professor Juliane L. Fry, Reed College, Portland Oregon, 2011-2012
Professor Robert McLaren, York University, Toronto, Ontario, 2011-2012

## Academic Courses

University of Colorado, Chemistry 4511, Physical Chemistry I
Spring 2016, 2018, 2022
University of Colorado, Chemistry 5161, Graduate Analytical Spectroscopy
Spring 2020, Fall 2020, Fall 2022

## Analytical Instrument Development

Cavity Ring Down Spectroscopy for $NO_3$ and $N_2O_5$

S. S. Brown *et al.*, Faraday Disc., **200**, 529 (2017)
N. L. Wagner *et al.*, Atmos. Meas. Tech. **4**, 1227 (2011)
W. P. Dubé *et al.*, Rev. Sci. Instr. **77**, 034101 (2006)
S. S. Brown, *et al*. Rev. Sci. Instr. **73**, 3291 (2002)

Cavity Ring Down Spectroscopy for $NO_2$, NO, $O_3$ and $NO_y$

R. J. Wild *et al.*, Environ. Sci. Technol. **48**, 9609 (2014).
R. A. Washenfelder *et al*., Environ. Sci. Technol. **45**, 2938 (2011).
H. Fuchs et al., Environ. Sci. Technol. **43**, 7831 (2009).

Broadband Cavity Enhanced Spectroscopy for UV-VIS absorbing gases

K. E. Min *et al.*, Atmos. Meas. Tech. **9**, 423 (2016).
R. A. Washenfelder, *et al*., Atmos. Chem. Phys. **8**, 7779 (2008).

Aerosol Optical Properties

A. R. Attwood et al., Geophysical Research Letters **41**, 7701 (2014).
R. A. Washenfelder, *et al*. Atmos. Meas. Tech. **6**, 861 (2013).
T. Baynard et al., Aerosol Science and Technology **41**, 447 (Apr, 2007).

Miniaturized instruments for UAS applications

C. C. Womack *et al.* Atmos. Meas. Tech., 15, 6643 (2022)

## Patents

U.S. Patent Number 9804138, Measurement of Total Reactive Nitrogen $NO_y$, Together with $NO_2$, NO, and $O_3$, via Cavity Ring-Down Spectroscopy

## External Collaborators and Research Projects

Yinon Rudich, Weizmann Institute, Israel
U.S. Israel Binational Science Foundation Grants to investigate sources of brown carbon aerosol, new instrumentation for aerosol optical properties, new instrumentation for UAS
Keding Lu, Peeking University, China
Nighttime chemistry in the context of major field campaigns in China
Tao Wang, Hong Kong Polytechnic University, China
Field studies of nighttime chemical processes in Hong Kong, China
Wahid Mellouki, CNRS, Orleans, France
Laboratory and field studies of nitrate radicals
Andy Ruth, University College Cork, Ireland & Andreas Zahn, Karlsruhe Institute of Technology, Germany
Development of new instrument for measurement of $N_2O_5$ in the upper troposphere from CARIBIC
Solomon Bililign, North Carolina A&T, Greensboro, NC
Analysis of field campaign data and co-advising of Ph.D. Students
S. Brown appointed as Adjunct professor in Department of Energy and Environmental Systems to advise Ph.D. students at NC A&T

## Recent and Forthcoming Presentations

"The Airborne and Remote Sensing Methane and Air Pollution Surveys: Initial Results from Colorado and Utah", University of Colorado, Analytical Chemistry Seminar, October 2024

"Airborne Ozone Profiles under TEMPO during the 2023 AEROMMA and CUPiDS Campaigns", TEMPO Science Team Meeting, Kona, HI, August 2024

"Anything New Under the Sun ? Thoughts on Ozone Photochemistry", Workshop on New Directions in Gas Phase Atmospheric Chemistry, Telluride, CO, July 2024

"Airborne and Remote Sensing Methane and Air Pollutant Surveys", NOAA GeoXO Meeting, College Park, MD, May 2024

"Ozone in Biomass Burning Plumes Aloft during AEROMMA, STAQS and CUPiDS", AGES+ Science Team Meeting, Boulder, CO, May 2024

"Biomass Burning Influence on Tropospheric Ozone from Recent Airborne and Ground Based Field Studies", European Geophysical Union Meeting, Vienna, Austria, April 2024

"Ozone in Wildfire Smoke: Impact on Atmospheric Composition at Local, Regional and Global Scale", Program in Atmospheres, Oceans & Climate Colloquium, Massachusetts Institute of Technology, March 2023.

"Ozone Production in Wildfire Smoke Plumes and its Influence on Urban Ozone", American Geophysical Union Fall Meeting, San Francisco, CA, December 2023.

"Ozone in Wildfire Smoke and its Influence at Regional and Global Scale", University of Colorado Analytical Chemistry Seminar, Boulder, CO, December 2023

"Air Quality Research in North America and NOAA's Interest in Air Quality Research in Africa", Together for Clean Air in Ethiopia Workshop, Addis Ababa, Ethiopia, December 2023.

"U.S. Air Quality Research", Workshop on Photochemical Air Pollution in Highly Urbanized Subtropical Regions, Hong Kong, China, November 2023

"The NOAA Chemical Sciences Laboratory Airborne Research Program", Facilities for Atmospheric Research and Education (FARE) workshop, NCAR Earth Observing Laboratory, Boulder, CO, September 2023

"The Southwest Urban $NO_x$ and VOC Experiment", Symposium on Urban Atmospheric Chemistry, American Chemical Society National Meeting, San Francisco, CA, August 2023

"Atmospheric Composition Research in the NOAA Chemical Sciences Laboratory", NASA Student Airborne Research Program, Palmdale, CA, June 2023

"NOAA CSL in situ measurements, mobile measurements, aircraft campaigns", NOAA GHG monitoring workshop, Silver Spring, MD, June 2023

"Large Scale Multi-Agency / Platform Sub-Orbital Activities", TEMPO Science Team Meeting, Huntsville, AL, May 2023

"Air quality measurement programs and strategies in the U.S. and how they might inform observations and modeling in an African megacity," Workshop on a Pilot Design for Air Quality in Africa, Kigali, Rwanda, January 2023

"Wildfire Influence on Urban Ozone: An Observationally Constrained Box Model Study at a Site in the Colorado Front Range," American Meteorological Society Meeting, Denver, CO, January 2023

"AGU Fellows Talk" American Geophysical Union Meeting, December 2022, Chicago, IL

"Pollutant Emissions and Distributions in the U.S. Urban Southwest: Mobile Measurements of Nitrogen Oxides, Greenhouse Gases and VOCs," American Geophysical Union Meeting, December 2022, Chicago, IL

"Wildfires and Ozone: Emissions, Chemistry and New Challenges to Air Quality", Department of Chemistry Seminar, Northern Kentucky University, October, 2022.

"Heterogeneous Chemistry on Biomass Burning Aerosol: Aircraft Measurements of $N_2O_5$ and $ClNO_2$ during FIREX-AQ", American Association for Aerosol Research (AAAR) Annual Meeting, Raleigh, North Carolina, October 2022

## Publications

Research ID: https://publons.com/researcher/l-1762-2013/

Submitted, Discussion or In Press

282. Barsanti, K.C., S.S. Brown, E.V. Fischer, J.W. Kaiser, C.E. Stockwell, C. Thompson, C. Warneke, and J. Yokelson Robert, *Findings from biomass burning field campaigns set directions for future research on atmospheric impacts.* ES&T Air, 2024. **submitted**.
281. Chouza, F., T. Leblanc, P. Wang, S.S. Brown, K. Zuraski, W. Chace, C.C. Womack, J. Peischl, J. Hair, T. Shingler, and J. Sullivan, *The Small Mobile Ozone Lidar (SMOL): instrument description and first results.* Atmos. Meas. Tech. Discuss., 2024. **2024**: p. 1-18.
280. Verreyken, B., C. Harkins, M. Li, W. Angevine, C. Stockwell, L. Xu, M. Coggon, J. Gilman, C. Warneke, E. Strobach, S. Brown, B. McCarty, R. Marchbanks, S. Baidar, A. Brewer, E. Pfannerstill, C. Arata, A. Goldstein, J. Brioude, and B. McDonald, *Top-down Evaluation of Volatile Chemical Product Emissions using a Lagrangian Framework.* Environ. Sci. Technol., 2024. **submitted**.
279. Fuchs, H., A. Stainsby, F. Berg, R. Dubus, M. Färber, A. Hofzumahaus, F. Holland, K.H. Bates, S.S. Brown, M.M. Coggon, G.S. Diskin, G.I. Gkatzelis, C.M. Jernigan, J. Peischl, M.A. Robinson, A.W. Rollins, N.B. Schafer, R.H. Schwantes, C.E. Stockwell, P.R. Veres, C. Warneke, E.M. Waxman, L. Xu, K. Zuraski, A. Wahner, and A. Novelli, *Advances in OH reactivity instruments for airborne field measurements.* EGUsphere, 2024. **2024**: p. 1-24.
278. Rivera-Adorno, F.A., J.M. Tomlin, N.N. Lata, L. Azzarello, R.A. Washenfelder, A. Franchin, A.M. Middlebrook, S. China, S.S. Brown, C.J. Young, M. Fraund, R.C. Moffet, and A. Laskin, *Chemical Imaging of Atmospheric Biomass Burning Particles from North American Wildfires.* ES&T Air, 2024. **submitted**.
277. Langford, A.O., R.J. Alvarez Ii, K.C. Aikin, S. Baidar, W.A. Brewer, S.S. Brown, M.M. Coggan, P.D. Cullis, J. Gilman, G.I. Gkatzelis, D. Helmig, B.J. Johnson, K.E. Knowland, R. Kumar, A.D. Lamplugh, A. McClure-Begley, B.J. McCarty, A.M. Middlebrook, G. Pfister, J. Peischl, I. Petropavlovskikh, P.S. Rickley, A.W. Rollins, S.P. Sandberg, C.J. Senff, and C. Warneke, *An Unusual Winter Ozone Event in Colorado.* EGUsphere, 2024. **2024**: p. 1-36.
276. Zhu, Q., R.H. Schwantes, C.E. Stockwell, C. Harkins, C. Lyu, M. Coggon, K. Yu, C. Warneke, J. Schnell, J. He, H.O.T. Pye, M. Li, R. Ahmadov, E.Y. Pfannerstill, B. Place, P. Wooldridge, B.C. Schulze, C. Arata, A. Bucholtz, J.H. Seinfeld, L. Xu, K. Zuraski, M.A. Robinson, J.A. Neuman, J. Gilman, A. Lamplugh, P.R. Veres, J. Peischl, A. Rollins, S.S. Brown, A.H. Goldstein, R.C. Cohen, and B.C. McDonald, *Co-benefits of Zero-Emission Vehicle Adoption on CO2 Emissions and O3 Pollution in Los Angeles.* Nature Sustainability, 2024. **submitted**.
275. Pichugina, Y.L., E. Strobach, B. Carroll, S. Baidar, W.A. Brewer, R. Ahmadov, P.S. Bhattacharjee, E. James, S. Sandberg, S.S. Brown, J. Schnell, V. Caicedo, and R. Delgado, *Analysis of a June 2023 Smoke Plumes over the Northeast US Caused by Fires in Canada.* Journal of Applied Meteorology and Climatology, 2024. **submitted**.
274. Rivera-Adorno, F., L. Azzarello, M. Robinson, Z. Decker , R. Washenfelder, K. Hayden, A. Franchin, C.D. Holmes, C. Young, C. Fredrickson, B. Palm, A. Soja, E. Gargulinski, S. Brown, A. Middlebrook, and A. Laskin, *Aircraft Measurements from a U. S. Western Wildfire Demonstrating Day and Night Differences in Chemical Composition and Optical Properties of Biomass Burning Aerosols and their Atmospheric Evolution.* ACS Earth and Space Chemistry, 2024. **submitted**.
273. Cooper, O.R., K.-L. Chang, K. Bates, W.S. Chace, M. Coggon, A. Gorchov Negron, B. McDonald, A. Middlebrook, N. Schafer, C. Stockwell, J. Peischl, A. Piasecki, S. Wang, C. Warneke, and K. Zuraski, *Early-season 2023 wildfires generated record-breaking surface ozone anomalies across the U.S. Upper Midwest.* Geophys. Res. Lett., 2024. **submitted**.
272. Stockwell, C.E., M.M. Coggon, R.H. Schwantes, C. Harkins, B. Verreyken, C. Lyu, Q. Zhu, L. Xu, J.B. Gilman, A. Lamplugh, J. Peischl, M.A. Robinson, P.R. Veres, M. Li, A.W. Rollins, K. Zuraski, S. Baidar, S. Liu, T. Kuwayama, S.S. Brown, B.C. McDonald, and C. Warneke, *Urban ozone formation*

*and sensitivities to volatile chemical products, cooking emissions, and NOx across the Los Angeles Basin.* EGUsphere, 2024. **2024**: p. 1-24.

271. Saiz-Lopez, A., A.S. Mahajan, J. Abbatt, N. Bobrowski, S.S. Brown, J.P. Burrows, L.J. Carpenter, M.P. Chipperfield, C.A. Cuevas, R.P. Fernandez, R. Hossaini, D.E. Kinnison, J.-F. Lamarque, B.J. Finlayson-Pitts, J.M.C. Plane, U. Platt, K.A. Pratt, A.R. Ravishankara, R. Salawitch, E. Saltzman, W.R. Simpson, S. Solomon, J.A. Thornton, and T. Wang, *Short-Lived Halogens: A Key Component of Atmospheric Chemistry and Climate.* Nature, 2024. **submitted**.
270. Warneke, C., R. Schwantes, P. Veres, A.W. Rollins, S. Baidar, W.A. Brewer, C. Senff, A. Langford, K. Aikin, G. Frost, D.W. Fahey, L. Judd, B. Lefer, R.B. Pierce, S. Kondragunta, C.E. Stockwell, D. Gentner, A.T. Lambe, D.B. Millet, D. Farmer, N.L. Ng, J. Kaiser, C.J. Young, J.E. Mak, G.M. Wolfe, J.T. Sullivan, K. Mueller, A. Karion, L.C. Valin, M. Witte, L.M. Russell, X. Ren, R.F. Dickerson, P. DeCarlo, B.C. McDonald, and S.S. Brown, *The AEROMMA 2023 Experiment (Atmospheric Emissions and Reactions Observed from Megacities to Marine Areas).* Elementa, 2023. **Submitted**.

Published

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