Eleanor C. Browne
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Education

2012	Ph.D., Department of Chemistry, University of California, Berkeley
2006	B.S., *Summa cum Laude,* The College of William and Mary, Highest Honors in Chemistry

Employment

2024-Current	Associate Professor, Department of Chemistry University of Colorado, Boulder
2015-Current	Fellow, Cooperative Institute for Research in Environmental Science (CIRES) University of Colorado, Boulder
2015-2024	Assistant Professor, Department of Chemistry University of Colorado, Boulder
2012-2015	NOAA Climate and Global Change Postdoctoral Fellow Department of Civil and Environmental Engineering Massachusetts Institute of Technology
2006-2012	Graduate Research Assistant University of California, Berkeley, Department of Chemistry

Select Honors and Awards

2022	American Chemical Society Environmental Au 2022 Rising Star in Environmental Research
2022	University of Colorado Boulder Provost Faculty Achievement Award
2019	American Society for Mass Spectrometry Research Award
2013	ACCESS XII invited participant Atmospheric Chemistry Colloquium for Emerging Senior Scientists Brookhaven National Laboratory, Upton, NY
2012-2014	NOAA Climate and Global Change Postdoctoral Fellowship
2010-2012	NASA Earth Systems Science Fellowship
2009	NASA Group Achievement Award for efforts during the Arctic Research of the Composition of the Troposphere from Aircraft and Satellite Experiment (ARCTAS) February 2008-July 2008
2005	Inducted into Phi Beta Kappa

Professional Training

2019	Certification in Mental Health First Aid by National Council for Behavioral Health (CU Boulder)
2018	Introductory Leadership Workshop (CU Boulder)
2013	Path of Professorship Workshop (MIT)
2011	Summer Institute for Preparing Future Faculty (UC Berkeley)

Research

Select Recent High-Impact Publications (out of 38; advisees underlined)

Reed, N. W.; Shearer, R. L.; McGlynn, S. E.; Wing, B. A.; Tolbert, M. A.; **Browne, E. C.**: Abiotic Production of Dimethyl Sulfide, Carbonyl Sulfide, and Other Organosulfur Gases via Photochemistry: Implications for Biosignatures and Metabolic Potential, *Astrophys. J. Lett.,* 973(2), L38, doi:10.3847/2041-8213/ad74da, 2024. ****CIRES write-up** (also present at phys.org)** *

Matthews, E.; Bannan, T. J.; Khan, M. A. H.; Shallcross, D.; Stark, H.; **Browne, E. C.**; Archibald, A. T.; Mehra, A.; Bauguitte, S.; Reed, C.; Thamban, N. M.; Wu, H.; Barker, P.; Lee, J.; Carpenter, L. J.; Bell, T. G.; Allen, G.; Jayne, J. T.; Percival, C. J.; McFiggans, G.; Gallagher, M.; Coe, H.: Airborne observations over the North Atlantic Ocean reveal the importance of gas-phase urea in the atmosphere, *Proc. Natl. Acad. Sci. U.S.A.*, 120(25), e2218127120, doi:10.1073/pnas.2218127120, 2023.

Katz, D. J.; Abdelhamid, A.; Stark, H. J.; Canagaratna, M. R.; Worsnop, D. R.; **Browne, E. C**.: Chemical Identification of new particle formation and growth precursors through positive matrix factorization of ambient ion measurements, *Atmos. Chem. Phys.*, 23, 5567–5585, doi:10.5194/acp-23-5567-2023, 2023.

Reed, N. W.; Wing, B. A.; Tolbert, M. A.; **Browne, E. C.**: Trace H_2S Promotes Organic Aerosol Production and Organosulfur Compound Formation in Archean Analog Haze Photochemistry Experiments, *Geophys. Res. Lett.*, 49, e2021GL097032, doi:10.1029/2021GL097032, 2022.

Alton, M. W.; **Browne, E. C.**: Atmospheric degradation of cyclic volatile methyl siloxanes: Radical chemistry and oxidation products, *ACS Environmental Au,* doi:10.1021/acsenvironau.1c00043, 2, 3, 263-274, 2022. ****Selected for inclusion in Rising Stars Special Issue****

Browne, E. C.; Zhang, X.; Franklin, J. P.; Ridley, K. B.; Kirchstetter, T. W.; Wilson, K. R.; Cappa, C. D.; Kroll, J. H.: Effect of heterogeneous oxidative aging on light absorption by biomass-burning organic aerosol, *Aerosol Sci. Technol.,* 53(6), 663-674, doi:10.1080/02786826.2019.1599321, 2019. ****Editorial Board Selection as a 2019 Notable Paper** Video describing the work **Cited in a 2022 Provost Faculty Achievement Award****

Berry, J. L.; Ugelow, M. S.; Tolbert, M. A.; **Browne, E. C.:** Chemical Composition of Gas-Phase Positive Ions During Laboratory Simulations of Titan's Haze Formation, *ACS Earth and Space Chem.*, 3(2) 202-211, doi:10.1021/acsearthspacechem.8b00139, 2019. ****Selected for inclusion in J Phys Chem A/ACS Earth and Space Chem Virtual Issue on Astrochemistry, 10.1021/acsearthspacechem.9b00259.**

Select Research Funding at CU

Total: $2.8 million in external funding as PI ($2.25 million to Browne); ~$140k to Browne in external funding as co-I; $30k in internal funding to Browne

Title	Agency	Award	Duration	Role
Bridging the Gap between Measurements and Models of Habitable World Atmospheres: Investigating Radical Chain Chemistry as a Control on Organic Haze	NASA Habitable Worlds	$542,693 80NSSC23K1526	8/24/23-8/23/26	PI
Boundary Layer Gradients in New Particle Formation and Growth at Southern Great Plains *Collaborators: Aerodyne Research Inc., Brookhaven National Lab*	Department of Energy Atmospheric Systems Research	$586,690 DE-SC0023533	1/1/23-12/31/25	PI

Title	Agency	Award	Duration	Role
Collaborative Research: Photochemical Silicon Aerosols: Establishing Atmospheric Sources and Significance *Collaborator: University of Iowa*	National Science Foundation Atmospheric Chemistry	$217,400 AGS-2029017	2/1/21-1/31/25	PI
Impact of Sulfur on Planetary Haze: Implications for Habitability	NASA Habitable Worlds	$444,323 ($385,506 to Browne) 80NSSC20K0232	11/5/19-11/4/24	PI

Select Funding to supervised graduate students

Total: External $338,200; Internal ~$154,000

Student	Award	Duration	Amount
Bri Dobson	Department of Energy Office of Science Graduate Student Research (SCGSR) Fellowship	1/24-12/24	$43,200
Hanalei Lewine	NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST) Fellowship	1/24-12/26	$150,000
Aroob Abdelhamid	NSF Graduate Research Opportunities Worldwide (research at University of Eastern Finland)	7/19-6/20	$5,000
Aroob Abdelhamid	NSF Graduate Research Fellowship	6/16-5/20	$138,000

Field Research Experience as Principal Investigator (6 additional as participating scientist)

2023 Boundary Layer Gradients in New Particle Formation, Lamont, OK (Principal Investigator)
2021, 2022 Characterizing New Particle Formation and Growth, Lamont, OK (Principal Investigator)

Select Research Seminars & Presentations

Seminars Browne as presenter*:* 18 since 2015

Invited Presentations Browne as presenter (out of 14 total)

Atmospheric Chemical Mechanisms Conference Plenary Speaker, Davis, CA, December 2024

Environmental Molecular Sciences Laboratory (EMSL) User Meeting, Keyonte Address, Richland, WA, October 2024.

American Chemical Society National Meeting*,* Denver, CO, August 2024.

Tracing Sulfur from Molecular Clouds to the Origin of Life*,* Lorentz Center Workshop, Leiden, Netherlands, September 2022.

Expert Workshop to Review Potential Mechanisms of Degradation of Siloxanes/Silanols in the Atmosphere, hosted by Dow Chemical and the Global Silicones Council, Virtual, August 2021.

Canadian Chemistry Conference and Exhibition, Edmonton, Alberta, Canada, May 2018.

Contributed Presentations with Advisees as Presenter out of 39 total; *indicates presenter; all advisees underlined

*Lewine, H. L.; Meepage, J.; Mohammadi, S.; Guiterrez, C.; Stanier, C.; Stone, E.; **Browne, E. C.**; Investigating SOA Formation from Volatile Methyl Siloxanes, *American Association for Aerosol Research 42nd Annual Conference,* Albuquerque, NM, October 2024. (Oral presentation)
***** Student Platform Presentation award winner*****

*Katz, D. J.; Abdelhamid, A.; Stark, H.; Canagaratna, M.; Worsnop, D. R.; **Browne, E. C.:** Measurements of Ambient Ionic Clusters Reveal the Chemical Identity of New Particle Formation and Growth Precursors, *Molecular and Ionic Clusters Gordon Research Conference*, Ventura, CA, February 2024.
*****Selected for Hot-Topic oral presentation*****

*Katz, D. J.; Abdelhamid, A.; Stark, H.; Canagaratna, M.; Worsnop, D. R.; **Browne, E. C.:** Chemical Identification of New Particle Formation and Growth Precursors through Positive Matrix Factorization of Ambient Ion Measurements, *American Association for Aerosol Research 41st Annual Conference,* Portland, OR, October 2023. (Oral presentation)
***** Student Platform Presentation award winner*****

*Reed.; N. W.; Wing, B. A.; Tolbert, M. A.; **Browne, E. C.:** The Role of Hydrogen Sulfide in Planetary Organic Haze Chemistry, *Prebiotic Chemistry and Early Earth Environments (PCE3) NASA Astrobiology Seminar Series,* Virtual, March 2022. (Invited Oral Presentation)

*Berry, J.; Ugelow, M.; Tolbert, M.; **Browne, E. C.:** Influence of Positive Ions during Laboratory Simulations of Titan's Haze Formation. *American Geophysical Union Fall Meeting*, Washington, D.C., December 2018. (Oral Presentation)
***** Outstanding Student Presentation Award*****

*Berry, J.; Ugelow, M.; Tolbert, M.; **Browne, E. C.**: Chemical composition of ions during laboratory simulations of Titan's haze formation. *CU Boulder Research and Innovation Week*, Boulder, CO, October 2018. (Poster presentation)
***** Top Poster Presenter Award*****

Select Awards to supervised graduate students

Bri Dobson	NSF Graduate Research Fellowship Honorable Mention 2022
Jennifer Berry	NSF Graduate Research Fellowship Honorable Mention 2016

Mentoring

Current

Ph.D. Students	Jeffrey Price (Fall 2023 – current), Maxwell Lee (Fall 2023 – current), Jim Hall (Fall 2023 – current), Hanalei Lewine (Fall 2021 – current), Bri Dobson (Fall 2020 – current), Daniel Katz (Fall 2019 – May 2025).
Sabbatical	Prof. Shawn McGlynn (Tokyo Institute of Technology): Sept 2024 – current

Alumni

Ph.D. Students	Dr. Nathan Reed (Ph.D. May 2023), Dr. Mitchell Alton (Ph.D. May 2022), Dr. Aroob Abdelhamid (Ph.D. December 2020), Dr. Jennifer Berry (Ph.D. May 2020).
Undergraduate	7 CU Boulder undergraduates (1 as undergraduate honors thesis), 3 Community College students, 1 undergraduate from McGill University
High School	1 student
Visiting Scholar	Dr. Andris Skromulis (Rezekne Academy of Technologies, Latvia): Sept. 2021 – Sept. 2022

Teaching

Courses (*indicates new courses developed by Browne)

*CHEM 2100	Chemical Energetics and Dynamics/Foundations of Chemistry 2 (4 credit hours; undergraduate; course name change in 2021) Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023
CHEM 4171	Instrumental Analysis 1 (3 credit hours; undergraduate) Fall 2017, Fall 2020, Fall 2022, Fall 2024
*CHEM 5131	Computer Programming & Data Analysis (3 credit hours; graduate) Fall 2015, Fall 2016, Fall 2019, Fall 2021, Spring 2024

Service, Outreach, and Leadership

To the profession (Select examples)

Member of	American Association for Aerosol Research (AAAR), American Chemical Society (ACS), American Geophysical Union (AGU), European Geosciences Union (EGU)
Reviewer for Journals such as	*Chemosphere, Environmental Science: Atmospheres, Environmental Science & Technology, International Journal of Chemical Kinetics, Journal of Physical Chemistry A, The Planetary Science Journal, Scientific Reports*
Reviewer for Agencies such as	American Chemical Society Petroleum Research Foundation, Canada Foundation for Innovation, Department of Energy Atmospheric Systems Research, Department of Energy Small Business Innovation Research/Small Business Technology Transfer, National Science Foundation, Netherlands Organisation for Scientific Research, NOAA Atmospheric Chemistry, Carbon Cycle, & Climate (AC4)
2024-current	Member of the Scientific Advisory Board of the Atmospheric Chemistry Observations & Modeling (ACOM) laboratory of the National Center for Atmospheric Research (NCAR)
2024-current	Aerosol Chemistry Working Group Vice-Chair, American Association for Aerosol Research
2024-current	PCE_3, Prebiotic Chemistry and Early Earth Environments NASA Research Coordination Network, Steering Committee member
2022	Technical Program Committee, *Atmospheric Chemical Mechanisms Conference*, Davis, CA, December 2022.
2021-2022	Member of search committee for National Center for Atmospheric Research (NCAR) Senior Scientist position
2016	Symposium Co-organizer, Fall American Chemical Society National Meeting “Physical Chemistry of Atmospheric Processes”
2015-current	Co-editor of *Atmospheric Chemistry and Physics* (Journal of the European Geosciences Union; Clarivate 5-year impact factor 6.7 as of October 2023)

To the Department, CIRES, University (Select examples; years denote academic years)

2023-2024	Faculty Mentor in the Native & Indigenous Mentorship Program (STEM Routes)
2022-2024	Department of Chemistry Director of Graduate Studies
2022-2023	Department of Chemistry Program Assessment Committee
Fall 2022	Panelist on the “Thriving in the First Year: What I Wish I Had Known” workshop as part of the “Thriving at CU: Supporting Faculty in their First 3 years” Series (9/15/22)
2016-2017	Department of Chemistry Academic Review and Planning Self-Study Committee Headed *Enhancing Graduate Education* and *Mentoring* questions
2015-current	CIRES Council of Fellows