

CURRICULUM VITAE

NAME: David Owen De Haan

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ADDRESS

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EMPLOYMENT

2011–present Professor of Chemistry, University of San Diego
2022 Visiting Researcher, Université Paris Est - Créteil
2019-2021 Associate Chair, Department of Chemistry & Biochemistry, University of San Diego
2005-2011 Associate Professor of Chemistry, University of San Diego
2008-2009 Visiting Fellow, Cooperative Institute for Research in Environmental Sciences, CU Boulder
2001-2005 Assistant Professor of Chemistry, University of San Diego
1997-2001 Assistant Professor of Chemistry, Lyon College, Batesville, AR
1996-1997 Postdoctoral Fellow with Prof. B. J. Finlayson-Pitts, UC Irvine
1994-1995 International Postdoctoral Fellow, NSF International Programs Division, with Dr. F. Stordal, Norwegian Institute for Air Research

EDUCATION

1989-1994 Ph.D., Analytical & Environmental Chemistry, University of Colorado, Boulder
Advisor: Dr. John W. Birks

Dissertation Title: Heterogeneous reactions of chlorine peroxide (ClOOCl) on ice surfaces doped with halide ions: reaction kinetics and atmospheric significance.

1987-1989 B.Sc., Chemistry, Calvin College, Grand Rapids, MI
1984-1987 California Polytechnic State University, San Luis Obispo, CA

TEACHING EXPERIENCE

CHEM 101 / 111 Chemistry and Society / An Urban Introduction to Environmental Chemistry (core courses for non-science majors)
CHEM 151 / 152 General Chemistry I and II (and labs)
CHEM 220 Analytical Chemistry
CHEM 355 Environmental Chemistry
CHEM 396W Research Methods
CHEM 422 Physical Methods
CHEM 425 Instrumental Analysis
CHEM 495 Chemistry Seminar
CHEM 496 Undergraduate Research

Graduate Teaching Award: 1991-1992 Academic Year, University of Colorado

Outstanding Undergraduate Research Mentor Award: 2012, University of San Diego

RESEARCH AWARDS AND GRANTS (All are single-P.I. grants except as noted)

RUI Grant: \$499,930, National Science Foundation, 2022 – 2025, AGS-2218491

“Laboratory Simulations of Cloud Processing of Smoke”

Eurochamp 2020 Access Grant, €3500 + €11,672 in chamber fees waived, 2020-2021

“Multiphase brown carbon formation by the photooxidation of resorcinol and guaiacol”

Eurochamp 2020 Access Grant, €1935 (USD) / €4665 (U. Helsinki) + €11,672 in chamber fees waived, (co-investigator), 2019-2020

“Aqueous Formation of Brown Carbon from Pyrogallol and Syringol Photo-oxidation”

IRES Grant, \$156,672 (USD) / \$143,328 (HMC), National Science Foundation, (collaborative, 2 co-PIs) 2018-2023, AGS-1826593

“Brown Carbon Aerosol Formation by Photooxidation of Phenolic Compounds in Nanodroplets”

Eurochamp 2020 Access Grant, €11,120, 2017-2018

“Aqueous formation of brown carbon: Effects of photooxidation, clouds, and SO₂”

EMSL Access Grant, \$44,253, Environmental Molecular Sciences Laboratory, 2015-2017

“Atmospheric Brown Carbon Production: Cloud Chamber Experiments on Methylglyoxal, Methylamine, and Ammonium Sulfate Seed Particles in the Presence of Sunlight and Oxidants”

RESEARCH AWARDS AND GRANTS (Cont.)

- RUI Grant, \$366,635, National Science Foundation, 2015 – 2019, AGS-1523178
“Brown carbon aerosol production in polluted environments: the effects of oxidants, SO₂, and sunlight on aqueous-phase aldehyde reactivity”
- REU Grant, \$270,000, National Science Foundation (participating faculty), 2015 - 2018
“Climate change across the various scales of system organization”
- RUI Grant, \$337,508, National Science Foundation, 2011 – 2015
“Secondary organic aerosol and brown carbon formation from aldehydes, ammonium salts, and amines”
- RUI Grant, \$310,000, National Science Foundation, 2008 – 2012
“Secondary organic aerosol formation by cloud processing of alpha-dicarbonyl and amine compounds”
- CIRES Fellowship, \$36,250, Cooperative Institute for Research in Environmental Sciences, 2008-2009
“Direct Analysis of Reactions Between Glyoxal, Methylglyoxal, Amino Acids and Glycerol During Cloud Processing”
- University Professorship, \$13,000, University of San Diego, 2007-2008
- Blasker Grant, \$39,878, San Diego Foundation, 2007-2008 (co-P.I. Scott Anders)
“Determining Solution Pathways to Reduce Greenhouse Gas Emissions in the San Diego Region”
- Cottrell College Science Award Renewal, \$42,754, Research Corporation, 2004-2008
“Secondary organic aerosol formation by acid-catalyzed surface reactions.”
- Blasker Grant, \$24,000, San Diego Foundation, 2003-2004
“Haze formation: conversion of seed particles into secondary organic aerosol in polluted air”
- Cottrell College Science Award, \$42,524, Research Corporation, 2000-2002
“Study of the phase distribution of secondary organic aerosol components with different types of seed particles.”

MEMBER

- American Association for Aerosol Research
American Chemical Society
American Geophysical Union
American Scientific Affiliation
Council on Undergraduate Research

INVITED RESEARCH PRESENTATIONS

- “Brown Carbon in the Atmosphere: Where it comes from, and where it’s going,” presented at the Laboratoire Interuniversitaire des Systèmes Atmosphériques, Université Paris Est – Créteil, 18 October 2022
- “Wet, Dry, Light, Dark: Brown Carbon Formation in a Dynamic Atmosphere,” presented at the UK Centre for Doctoral Training in Aerosol Science, University of Bristol (remote), 10 June 2021
- “Brown Carbon Formation: Chemical Reactions in Wet and Dry Aerosol Particles,” presented at the Environmental Science Seminar, University of California, Riverside, 24 Jan 2020
- “Effects of gas-phase methylamine and cloud processing on aerosol chemistry, water uptake, viscosity, and optical properties,” presented at the American Chemical Society Fall National Meeting, San Diego, 25-29 August 2019
- “Cloud chemistry in the lab: tracking the pathways of brown carbon formation,” presented at the Geology / Geophysics / Marine Chemistry Seminar, Scripps Institution of Oceanography, 8 April 2019
- “Chemistry of Clouds: Aldehydes, amines, & sources of brown aerosol,” presented at the Physical and Analytical Chemistry Seminar, UC San Diego, 23 Oct 2018
- “Chemistry of Clouds: Aldehydes, amines, & sources of brown aerosol,” presented at the Department of Chemistry, Smith College (Northampton, MA), 15 Oct 2018
- “Enhanced reactivity in aqueous aerosols: Why bulk-phase aqueous measurements can mislead us,” presented at the 253rd ACS National Meeting (San Francisco), 2-6 Apr 2017
- “Turning Brown in the Sun: Aldehydes, Aqueous Aerosol, and Evaporating Cloud Droplets,” presented at the Earth Systems Research Laboratory, Chemical Sciences Division, National Oceanic and Atmospheric Admin. (NOAA), Boulder, 15 March 2017
- “Aerosol Particle Browning and Production of Oligomer Species Upon Exposure to Gas-Phase Methylglyoxal or Methylamine,” presented at the Department of Chemistry, California State University, Fullerton, 3 Nov 2016
- “Aerosol Particle Browning and Production of Oligomer Species Upon Exposure to Gas-Phase Methylglyoxal or Methylamine,” presented at the Department of Chemistry, California State University, Long Beach, 26 Oct 2016
- “The chemistry of clouds: brown carbon and aerosol production,” at the 33rd Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (Irvine), 24 Mar 2016
- “Aqueous-phase aldehyde photooxidation in the presence of ammonium salts, amines, and SO₂: Brown carbon formation” presented at the 249th ACS National Meeting (Denver), 22-26 March 2015
- “Prompt and slow deliquescence of semi-solid, oligomerized aqueous SOA mixed with ammonium sulfate” presented at the 248th ACS National Meeting (San Francisco), 10-14 August 2014

INVITED RESEARCH PRESENTATIONS (Cont.)

- “When fog burns off: Brown aerosol production pathways by aldehyde – amine reactions in evaporating water droplets” presented at the NOBCCChE West meeting, UC San Diego, 22 March 2014
- “What amines are up to: looking for new atmospheric aerosol production pathways in clouds and aqueous particles” presented at the Department of Chemistry, UC Davis, 13 May 2013
- “Links between the oxidation of glyoxal and sulfur dioxide, the production of brown carbon, and geoengineering schemes” presented at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “Brown carbon production in clouds and aerosol” presented at the Department of Chemistry, University of Colorado at Denver, 18 March 2011.
- “Glyoxal vs. methylglyoxal: Aerosol formation chemistry” presented to the Atmospheric Chemistry Division, National Center for Atmospheric Research, Boulder, Colorado, 1 June 2009
- “Glyoxal vs. methylglyoxal: Aerosol formation chemistry” presented at Environment Canada, Toronto, 25 May 2009
- “Irreversible aerosol-forming reactions of volatile dicarbonyl and amine compounds” presented at the Department of Atmospheric Science, Colorado State University, Fort Collins, 29 January 2009
- “Irreversible aerosol-forming reactions of volatile dicarbonyl and amine compounds” presented at the Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, 3 November 2008
- “The glyoxal pathway: polymerized aerosol formation, amino acids, and cloud processing,” at the 24th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (Los Angeles), 9 Feb 2007
- “Accretion Reactions of Glyoxal, Methylglyoxal, and Amines in Evaporating Cloud Droplets,” in the Physical Chemistry Seminar Series, UCSD, 24 April 2007

PRESENTATIONS AT MEETINGS (*Undergraduate #Postdoc)

- “Secondary Organic Aerosol and Brown Carbon Formation from the Photooxidation and Cloud Processing of Guaiacol with and without Iron(II) Sulfate,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Sunday River, ME) 30 July – 4 August 2023
- “Brown Carbon Formation from Linked Aqueous-Phase Photooxidation of Glyoxal and SO₂,” presented by D. O. De Haan at American Chemical Society Spring National Meeting (Indianapolis), 26-30 Mar 2023
- “Brown Carbon from Aqueous-Phase Photooxidation of HOOH, Glyoxal, and SO₂,” presented by D. O. De Haan at the Molecular Understanding of Atmospheric Aerosols (MUOAA) 2022 conference (Big Bear, CA) 15-19 May 2022
- “Kinetics, products, and brown carbon formation by aqueous-phase reactions of glycolaldehyde with atmospheric amines and ammonium sulfate,” presented by D. O. De Haan at the American Chemical Society Spring 2022 National Meeting (San Diego), 20-24 Mar 2022
- “Products of aqueous-phase reactions of glycolaldehyde with atmospheric amines and ammonium sulfate in a cloud simulation chamber,” presented by M. A. Rafla* at the American Chemical Society Spring 2022 National Meeting (San Diego), 20-24 Mar 2022
- “Uptake coefficients of the phenolic species syringol and guaiacol on wet and dry aerosol particles,” presented by M.-K. Tran* and S. Hui* at the American Chemical Society Spring 2022 National Meeting (San Diego), 20-24 Mar 2022
- “Radical-initiated brown carbon formation in sunlit carbonyl – amine – ammonium sulfate bulk mixtures and aqueous aerosol particles,” presented by D. O. De Haan at the American Chemical Society Fall National Meeting (Atlanta / virtual), 22-26 August 2021
- “Brown Carbon Aerosol Systems,” presented by J. J. Turley at the American Chemical Society Spring National Meeting, Philadelphia, 2020 (meeting cancelled)
- “Effects of long-wave UV irradiation on the optical properties of methylamine – aldehyde – ammonium sulfate aerosol particles,” presented by C. Carmona* at the American Chemical Society Fall National Meeting, San Diego, 25-29 August 2019
- “Effects of sunlight on the optical properties of methylamine – aldehyde brown carbon aerosol particles,” presented by D. Ugland* at the American Chemical Society Fall National Meeting, San Diego, 25-29 August 2019
- “Physical and chemical effects of exposure of aerosol particles to methylamine gas in a cloud chamber,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Sunday River, ME) 28 July – 2 August 2019
- “Simultaneous water uptake and size-resolved bounce measurement of secondary organic aerosols,” presented by R. Gardner* at the 10th International Aerosol Conference (St. Louis), 2-7 Sep 2018
- “Not fade away: photolytic brown carbon formation in aqueous aerosol,” presented by D. O. De Haan at the 10th International Aerosol Conference (St. Louis), 2-7 Sep 2018
- “Nitrogen-containing, light-absorbing oligomers produced in aerosol particles exposed to methylglyoxal, photolysis, and cloud cycling,” presented by D. O. De Haan at NSF Atmospheric Chemistry meeting (Boulder, CO), 30-31 May 2018

PRESENTATIONS AT MEETINGS (Cont.)

- “How significant are methylglyoxal, SO₂, and amine reactions in the formation of brown carbon?” presented by A. de Loera* at the 35th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (Caltech, Pasadena CA), 30 Mar 2018
- “Interactions of glyoxal and SO₂ in clouds and aqueous aerosol: Production of SOA and light-absorbing quinone species,” presented by D. O. De Haan at the 36th Annual Conference of the American Association for Aerosol Research (Raleigh NC), 16-20 October 2017
- “Aqueous and dry aerosol processing of dicarbonyls: Uptake coefficients, SOA production, and radiative forcing,” presented by D. O. De Haan at the 254th National Meeting of the American Chemical Society (Washington DC) 20 – 24 August 2017
- “Aqueous and dry aerosol processing of dicarbonyls: Uptake coefficients, SOA production, and radiative forcing,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Sunday River, ME) 30 July – 4 August 2017
- “Aerosol-Phase Production of Nitrogen-Containing Oligomers After Uptake of Methylglyoxal and Cloud Processing,” presented by D. O. De Haan at the 34th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (UC San Diego), 12 May 2017
- “Turning Brown in the Sun: Aldehydes, Aqueous Aerosol, and Evaporating Cloud Droplets,” presented by D. O. De Haan at the Analytical & Environmental Chemistry Seminar Series, University of Colorado, Boulder, 24 April 2017
- “Turning Brown in the Sun: Aldehydes, Aqueous Aerosol, and Evaporating Cloud Droplets,” presented by D. O. De Haan at the Chemistry & Biochemistry Seminar Series, University of San Diego, 30 Mar 2017
- “Aerosol-Phase Production of Nitrogen-Containing Oligomers After Uptake of Methylglyoxal and Cloud Processing,” presented by D. O. De Haan at the AGU Fall Meeting (San Francisco) 12-16 December 2016
- “Cautionary Tales: How Bulk-Phase Aqueous Measurements Fail to Capture Surface-Enhanced Aerosol Reactions,” presented by D. O. De Haan at the Atmospheric Chemical Mechanisms Conference (Davis, CA), 7-9 December 2016
- “Production of Organic Aerosol Particles Caused by Glyoxal + •OH Reactions,” presented by A. Andretta* at the 35th Annual Conference of the American Association for Aerosol Research (Portland OR), 17-21 October 2016
- “Effects of Aerosol-Phase Browning in Aldehyde Reactions with SO₂ or Amines,” presented by D. O. De Haan at the 35th Annual Conference of the American Association for Aerosol Research (Portland OR), 17-21 October 2016
- “Aerosol Particle Browning: Production of Semivolatile and Light-Absorbing Species Upon Exposure to Gas-Phase Methylglyoxal,” presented by D. O. De Haan at the 35th Annual Conference of the American Association for Aerosol Research (Portland OR), 17-21 October 2016
- “Effects of Aerosol-Phase Browning in Aldehyde Reactions with SO₂ or Amines,” presented by B. Joyce* and A. de Loera* at the 97th Annual Meeting of the AAAS-Pacific Division (San Diego) 14-17 June 2016
- “Characterizing Brown Carbon Aerosol Formation,” presented by N. G. Jimenez* at the 97th Annual Meeting of the AAAS-Pacific Division (San Diego) 14-17 June 2016
- “Production of Organic Aerosol Particles Caused by Glyoxal + •OH Reactions,” presented by A. Andretta* at the 97th Annual Meeting of the AAAS-Pacific Division (San Diego) 14-17 June 2016
- “Browning of Aerosol Particles Upon Exposure to Methylglyoxal: Phase and Viscosity Effects,” presented by D. O. De Haan at the 97th Annual Meeting of the AAAS-Pacific Division (San Diego) 14-17 June 2016
- “Cloud chamber studies of brown carbon formation and aerosol production by aqueous-phase aldehyde-amine reactions during cloud cycling,” presented by D. O. De Haan at the International Chemical Congress of Pacific Basin Societies (“Pacifichem,” Honolulu), 15-20 December 2015
- “Measuring aqueous-phase browning in evaporating droplets: Aldehyde – amine reactions and cloud processing,” presented by D. O. De Haan at Goldschmidt2015 (Prague, 16-21 August 2015)
- “Secondary organic aerosol and brown carbon formation in the sunlit aqueous phase: aldehyde photooxidation in the presence of ammonium salts and amines,” presented by D. O. De Haan at the 32nd Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (CSU Northridge), 3 April 2015
- “Investigating index of refraction trends in ammonium sulfate and glyoxal reactions,” presented by Michael Symons* at the 249th ACS National Meeting (Denver), 22-26 March 2015
- “Single scattering albedo studies of brown carbon formation in evaporating droplets,” presented by Melanie Zauscher[#] at the 249th ACS National Meeting (Denver), 22-26 March 2015
- “Determination of N-containing conjugated brown carbon products in glycolaldehyde, methylamine, and glycine reaction mixtures,” presented by Taylor Kress* at the 249th ACS National Meeting (Denver), 22-26 March 2015
- “Secondary organic aerosol and brown carbon formation in the sunlit aqueous phase: aldehyde photooxidation in the presence of ammonium salts and amines,” presented by D. O. De Haan at the 2014 AGU Fall Meeting (San Francisco), 15-19 December 2014

PRESENTATIONS AT MEETINGS (Cont.)

- “After the cloud: Brown aerosol production pathways by aldehyde – amine – ammonium sulfate reactions in evaporating water droplet,” oral presentation by Michelle Powelson* at the 248th ACS National Meeting (San Francisco), 10-14 August 2014
- “Secondary Organic Aerosol Oligomerization, Particle Viscosity, and the Trapping of Volatiles in the Aerosol Phase,” presented by D. O. De Haan at the 32nd Annual Conference of the American Association for Aerosol Research (Portland, OR), 1-4 October 2013
- “Aqueous Reaction Rates of Hydroxyacetone with Ammonium Sulfate and Amines Measured by NMR as a Function of pH,” presented by Michael Symons* at the 32nd Annual Conference of the American Association for Aerosol Research (Portland, OR), 1-4 October 2013
- “Kinetics and pH Dependence of Aqueous-phase Reactions of Glycolaldehyde with Glycine, Ammonium Sulfate, and Methylamine,” presented by Alyssa Rodriguez* at the 32nd Annual Conference of the American Association for Aerosol Research (Portland, OR), 1-4 October 2013
- “React or Evaporate? Atmospheric Aldehydes in Aqueous Droplets Containing Amines or Ammonium Sulfate,” presented by Michelle Powelson* at the 32nd Annual Conference of the American Association for Aerosol Research (Portland, OR), 1-4 October 2013
- “Atmospheric Reactions between Glycolaldehyde, Formaldehyde, and Ammonium Sulfate: A Product Identification Study,” presented by Melissa Galloway[#] at the 32nd Annual Conference of the American Association for Aerosol Research (Portland, OR), 1-4 October 2013
- “Reaction rates and oligomer production from aldehydes: Comparing amines, ammonium sulfate, and OH radical reactions,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Mt. Snow, VT) 28 July – 2 August 2013
- “Drying monodisperse droplets down to residual aerosol: Aldehyde – amine reactions and trapped water,” presented by Melissa M. Galloway[#] at the Gordon Research Conference in Atmospheric Chemistry (Mt. Snow, VT) 28 July – 2 August 2013
- “Formaldehyde Reactions with Amines and Ammonia: Particle Formation and Product Identification,” presented by Melissa M. Galloway[#] at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “Residual particle sizes of evaporating droplets: ammonium sulfate and aldehydes,” presented by Nahzaneen Sedehi* at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “Monitoring Time-Dependent Formation of Oligomers and Brown Carbon in Reactions of Glycolaldehyde, Methylglyoxal, and Amines,” presented by Brenna M. Espelien* at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “Brown carbon formation by aqueous-phase aldehyde reactions with amines and ammonium sulfate,” presented by Michelle H. Powelson* at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “Formation of Hexamethylenetetramine by Aqueous Solutions of Formaldehyde and Ammonium Sulfate,” presented by Alyssa A. Rodriguez* at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “The Atmospheric Secondary Organic Aerosol (SOA) Forming Potential of Glycolaldehyde and Formaldehyde,” presented by Katherine D. Millage* at the 2012 AGU Fall Meeting (San Francisco), 3-7 December 2012
- “The Linked Aqueous-Phase Oxidation of Glyoxal and SO₂: Light-Absorbing Products,” presented by D. O. De Haan at the 31st Annual Conference of the American Association for Aerosol Research (Minneapolis, MN), 8-12 October 2012
- “Atmospheric Reactions of Glyoxal and Methylglyoxal with Peptides and Proteins,” presented by Kevin Forey* at the Spring ACS National Meeting (San Diego), 25 – 29 March 2012
- “Cloud Cycling Oligomers: Water Uptake by Organic Aerosol Formed via Aqueous-Phase Reactions,” presented by D. O. De Haan at the 30^h Annual Conference of the American Association for Aerosol Research (Orlando, FL), 3-7 October 2011
- “Aldehyde - Amine Reactions that Match the Fluorescent Properties of Atmospheric Brown Carbon,” presented by Brenna Espelien* at the 30^h Annual Conference of the American Association for Aerosol Research (Orlando, FL), 3-7 October 2011
- “Brown Carbon Formation by Aqueous-Phase Aldehyde – Amine Reactions,” presented by Michelle Powelson* at the 30^h Annual Conference of the American Association for Aerosol Research (Orlando, FL), 3-7 October 2011
- “NMR Rate Measurements of Glyoxal and Methylglyoxal Reacting with Amine and Ammonium Sulfate,” presented by Nazin Sedehi* at the 30^h Annual Conference of the American Association for Aerosol Research (Orlando, FL), 3-7 October 2011
- “Is dicarbonyl-amine chemistry a source of atmospheric HULIS?” **invited** talk by Lelia Hawkins[#] at the Fall ACS National Meeting (Denver), 28 Aug – 1 Sep 2011
- “Sources of brown carbon: aldehyde / amine reactions in the aerosol phase,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Mt. Snow, VT) 24-29 July 2011

PRESENTATIONS AT MEETINGS (Cont.)

- “Effects of sulfite-glyoxal adduct formation on glyoxal partitioning and brown carbon production,” presented by Alec Rynaski* at the 28th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (Irvine), 3 Mar 2011
- “Investigating the pH-dependent formation of light-absorbing products from mixtures of amine and dicarbonyl compounds,” presented by Michelle Powelson* at the 28th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (Irvine), 3 Mar 2011
- “Hygroscopicity of dicarbonyl-amine secondary organic aerosol products investigated with HTDMA,” presented by Lelia Hawkins[#] at the 2010 Fall Meeting of the American Geophysical Union (San Francisco), 13-17 December 2010
- “Aerosol yields and losses of aldehydes and amines from evaporating cloud droplets,” presented by D. O. De Haan at the 2010 Fall Meeting of the American Geophysical Union (San Francisco), 13-17 December 2010
- “Rate Measurements of Reactions Between Aldehydes and Amines Applied to Clouds and Aerosol,” presented by D. O. De Haan at the 29th Annual Conference of the American Association for Aerosol Research (Portland, OR), 25-29 October 2010
- “Aerosol formation by cloud processing of methylglyoxal and amines: kinetics and products,” presented by D. O. De Haan at the 240th ACS National Meeting (Boston), 22-26 August 2010
- “Aerosol formation by oligomerization: kinetics and aerosol yields,” presented by D. O. De Haan at the 2009 Fall Meeting of the American Geophysical Union (San Francisco), 14-18 December 2009
- “Aerosol oligomer production from α -dicarbonyls and methylamine,” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry (Waterville Valley, NH) 23-28 August 2009
- “Organic aerosol production from methylglyoxal,” presented by D. O. De Haan at the AGU Joint Assembly (Toronto), 24 – 27 May 2009
- “Aerosol-forming reactions of glyoxal, methylglyoxal and amino acids in clouds” presented by D. O. De Haan at the 2008 Fall Meeting of the American Geophysical Union (San Francisco), 15-19 December 2008
- “Irreversible cloudwater reactions of glyoxal, glycine, and methylamine” presented by D. O. De Haan at the 27th Annual Conference of the American Association for Aerosol Research (Orlando), 20-24 October 2008
- “Glyoxal uptake by organic aerosol” presented by D. O. De Haan at the Gordon Research Conference in Atmospheric Chemistry, Big Sky, Montana, 26-31 August 2007
- “Accretion reactions of glyoxal, methylglyoxal, and amines in evaporating cloud droplets” presented by D. O. De Haan at the AGU Joint Assembly (Acapulco), 22 – 25 May 2007
- “Aqueous-phase reactions of glyoxal and amino acids in evaporating cloud droplets” presented by Ashley L. Corrigan* at the 2006 Fall Meeting of the American Geophysical Union (San Francisco), 11-15 December 2006
- “Why glyoxal and methyl glyoxal won’t evaporate: cloud processing and triggered polymer formation” presented by D. O. De Haan at the 87th American Association for the Advancement of Science Pacific Division Annual Meeting (San Diego), 18-22 June 2006.
- “Secondary organic aerosol formation by glyoxal polymerization: an FTIR-ATR study” presented by D. O. De Haan at the 40th Western Regional ACS Meeting (Anaheim, CA), 22-25 January 2006
- “Organic aerosol formation via chemical reaction of glyoxal and other volatile aldehydes: good leads and misleads from SMPS, GC and LC-MS data” presented by D. O. De Haan at the 229th ACS National Meeting (San Diego), 13-17 March 2005
- “Loving analytical chemistry: field studies and student buy-in” presented by D. O. De Haan and J. P. Bolender at the 229th ACS National Meeting (San Diego), 13-17 March 2005
- “Secondary organic aerosol formation by reactive condensation of glyoxal, water vapor, and other aldehydes” presented by William P. Hastings* at the 85th American Meteorological Society Annual Meeting, 9-13 January 2005.
- “Secondary organic aerosol formation by reactive condensation of glyoxal and water vapor” presented by William P. Hastings* at the AGU Joint Assembly (Montreal), 17-21 May 2004
- “Reactions of volatile furandiones, aldehydes and water vapor in secondary organic aerosol formation and in gas chromatography analysis” presented by Charles A. Koehler* at the AGU Joint Assembly (Montreal), 17-21 May 2004
- “Behavior of submicron 1,10-decanediol aerosol in a small particle chamber with varying humidity.” Presented by Benjamin A. Gilbert* at the 223rd ACS National Meeting (Orlando), 7-11 April 2002
- “Condensation of multiple subsaturated organic compounds on submicron seed aerosol.” Presented by Kevin P. Flinn* at the 223rd ACS National Meeting (Orlando), 7-11 April 2002
- “Exploring smog haze formation by solid-phase microextraction (SPME) analysis of competitive absorption experiments.” Presented by Emily R. Blackwood* at the 221st ACS National Meeting (San Diego), 1-5 April 2001

PRESENTATIONS AT MEETINGS (Cont.)

"Designing a procedure for measurement of the gas-particle phase distribution of secondary organic aerosol components in a particle chamber." Presented by Bethani A. Rydzewski* at the 219th ACS National Meeting (San Francisco), 26-30 March 2000

PUBLICATIONS (*Undergraduate co-authors, #postdocs)

49. David O. De Haan, Lelia N. Hawkins, Jacob A. Weber,* Benjamin T. Moul,* Samson Hui,* Santeh A. Cox,* Jennifer U. Esse,* Nathan R. Skochdopole,* Mathieu Cazaunau, Antonin Bergé, Edouard Pangui, Johannes Heuser, Jean-François Doussin, Bénédicte Picquet-Varrault, "Multiphase guaiacol photooxidation: Fenton reactions, brown carbon, and secondary organic aerosol formation in suspended aerosol particles," (*submitted to ES&T Air*, Oct 2023)
48. David O. De Haan, Lelia N. Hawkins, Praveen D. Wickremasinghe,* Alyssa Andretta,* Audrey C. De Haan, Hannah G. Welsh,* Elyse Pennington,* Tianqu Cui, Jason D. Surratt, Mathieu Cazaunau, Edouard Pangui, Jean-François Doussin, "Brown Carbon from Photooxidation of Glyoxal and SO₂ in Aqueous Aerosol," *ACS Earth and Space Chemistry* (Apr 2023) doi: 10.1021/acsearthspacechem.3c00035 **AGS-2218491**
47. Alyssa A. Rodriguez,* Michael A. Rafla,* Hannah G. Welsh,* Elyse A. Pennington,* Jason R. Casar,* Lelia N. Hawkins, Natalie G. Jimenez,* Alexia de Loera,* Devoun R. Stewart,* # Antonio Rojas,* Matthew-Khoa Tran,* Peng Lin, Alexander Laskin, Paola Formenti, Mathieu Cazaunau, Edouard Pangui, Jean-François Doussin, David O. De Haan, "Kinetics, products, and brown carbon formation by aqueous-phase reactions of glycolaldehyde with atmospheric amines and ammonium sulfate," *J. Phys. Chem. A* **126** (32) 5375-5385 (Aug 2022) doi: 10.1021/acs.jpca.2c02606, PMC ID# PMC9393862 **5 citations**
46. Natalie G. Jimenez,* Kyle D. Sharp,* Tobin Gramyk,* Duncan Z. Ugland,* Matthew-Khoa Tran,* Antonio Rojas,* Michael A. Rafla,* Devoun Stewart,* # Melissa M. Galloway,* # Peng Lin, Alexander Laskin, Mathieu Cazaunau, Edouard Pangui, Jean-François Doussin, David O. De Haan, "Radical-initiated brown carbon formation in sunlit carbonyl – amine – ammonium sulfate mixtures and aqueous aerosol particles," *ACS Earth & Space Chem.* **6** (1) 228-238 (Jan 2022) doi: 10.1021/acsearthspacechem.1c00395 **2 citations**
45. Eleanor I. Gillette, Julia A. Schafer, David O. De Haan, "Using a Modular Approach to Introduce Python Coding to Support Existing Course Learning Outcomes in a Lower Division Analytical Chemistry Course," *J. Chem. Educ.* **98** (10) 3245-3250 (Sep 2021) doi: 10.1021/acs.jchemed.1c00456 **5 citations**
44. Enrico Tapavicza, Guido von Rudorff, David O. De Haan, Mario Contin, Christian George, Matthieu Riva, O. Anatole von Lilienfeld, "Elucidating an atmospheric brown carbon species – Towards supplanting chemical intuition with exhaustive enumeration and machine learning," *Environ. Sci. Technol.* **55** (12) 8447-8457 (May 2021) doi: 10.1021/acs.est.1c00885 **7 citations**
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41. David O. De Haan, Aki Pajunoja, Lelia N. Hawkins, Hannah G. Welsh,* Natalie G. Jimenez,* Alexia De Loera,* Melanie Zauscher,* # Alyssa D. Andretta,* Benjamin W. Joyce,* Audrey C. De Haan,* Matthieu Riva, Tianqu Cui, Jason D. Surratt, Mathieu Cazaunau, Paola Formenti, Aline Gratien, Edouard Pangui, Jean-François Doussin, "Methylamine's effects on methylglyoxal-containing aerosol: chemical, physical, and optical changes." *ACS Earth and Space Chem.* **3** (9) 1706-1716 (Jul 2019) doi:10.1021/acsearthspacechem.9b00103 **17 citations**
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36. David O. De Haan, Lelia N. Hawkins, Hannah G. Welsh,* Raunak Pednekar,* Jason R. Casar,* Elyse A. Pennington,* Alexia de Loera,* Natalie G. Jimenez,* Michael A. Symons,* Melanie Zauscher,# Aki Pajunoja, Lorenzo Caponi, Mathieu Cazaunau, Paola Formenti, Aline Gratien, Edouard Pangui, Jean-François Doussin, "Brown carbon production in ammonium- or amine-containing aerosol particles by reactive uptake of methylglyoxal and photolytic cloud cycling," *Environ. Sci. Technol.* **51** (13) 7458-7466 (May 2017) 10.1021/acs.est.7b00159 **86 citations**
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COLLABORATORS

i. Recent Collaborators

- ❑ Jonathan Slade, UCSD
- ❑ Bénédicte Picquet-Varrault, Jean-François Doussin, Paola Formenti, Aline Gratien, Mathieu Cazaunau, Antonin Bergé, Edouard Pangui, Université Paris – Est Créteil
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- ❑ Matthieu Riva, Christian George, Mario Contin, IRCELYON
- ❑ Eleanor Gillette, Jeremy Kua, Julia Schafer, University of San Diego
- ❑ Guido von Rudorff, O. Anatole von Liliensfeld, University of Vienna / University of Basel,
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- ❑ Aki Pajunoja, University of Eastern Finland
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- ❑ Sarah Hörst, Johns Hopkins University
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ii. Graduate and Postdoctoral Advisors

- ❑ John W. Birks, 2B Technologies, Boulder CO
- ❑ Frode Stordal, Norwegian Institute for Air Research (NILU)
- ❑ Barbara J. Finlayson-Pitts, University of California, Irvine

iii. Graduate Students Advised and Postdoctoral Scholars Sponsored

- ❑ Lelia N. Hawkins, Postdoctoral Scholar, 2010-2011, now Assoc. Professor at Harvey Mudd College
- ❑ Melissa Galloway, Postdoctoral Scholar, 2012-2014, now Assoc. Professor at Lafayette University
- ❑ Melanie Zauscher, USD Diversity Postdoctoral Scholar, 2014-2015, now grants officer at California Air Resources Board
- ❑ Devoun Stewart, USD Diversity Postdoctoral Scholar, 2017-2018, now Dean at American River College
- ❑ Tiffany Stewart, USD Diversity Postdoctoral Scholar, 2017-2019, now FDA Regulatory Chemist
- ❑ Chen Le, Postdoctoral Scholar, July 2023-present.