Zachary C.J. Decker – Curriculum Vitae

Zachary.Decker@NOAA.gov // ZacharyCJDecker@gmail.com // ZacharyCJDecker.com

About me

I am an atmospheric scientist specializing in operating atmospheric instrumentation to study air quality impacts from aerosols and gases. I go where we need answers, whether that be a flying laboratory through wildfire smoke or a long-term monitoring station atop the Swiss Alps. I am motivated by my love for the outdoors and to affect positive change for the environment.

Education

Aug 2016 – Aug 2021	Ph.D.	University of Colorado at Boulder (CU) Physical Chemistry
Aug 2012 – Jan 2016	B.A.	New College of Florida, Florida's Honors College (NCF) Honors / Physical Chemistry

Appointments

Jan 2024 – *Current*	Research Scientist II Atmospheric Composition & Chemical Processes Group Cooperative Institute for Research in Environmental Sciences (CIRES) National Oceanic and Atmospheric Administration (NOAA)
Jan 2022 – Dec 2023	Postdoctoral Fellow Paul Scherrer Institute (PSI), Switzerland
Aug 2021 – Dec 2021	Career Break Camping and hiking across Western North America
May 2016 – Jul 2021	Graduate Research Assistant Tropospheric Chemistry Group Cooperative Institute for Research in Environmental Sciences (CIRES) National Oceanic and Atmospheric Administration (NOAA)

Synergistic Activities

Science Outreach
- Senior Editor at Science Buffs: 2017 – 2021
- CU Wizards organizer and performer: 2019 – 2021
- NOAA Outreach presenter at conferences: 2018 – 2020

Mentoring
- Ph.D. student mentor at PSI: 2022
- Hiking guide and Environmental Steward in the CU Boulder Hiking Club: 2020 – 2022
- Graduate student peer mentor at CU Boulder: 2020

Teaching
- STEM tutoring for middle to college level: 2013 – 2021
- Teaching Assistant in Chemistry: 2013 – 2017
- Teacher for SAT/ACT prep courses at the IMG Academy: 2014 – 2016

Honors, Awards, and Fellowships

- Irish Research Council Postdoctoral Fellowship (*declined*): 2021
- Bronze Medal – CIRES: 2021
- Group Achievement Award – NASA, for FIREX-AQ: 2021
- Graduate Research Fellowship – CIRES: 2019
- Outstanding Student Presentation Award – American Geophysical Union: 2018
- 1st place at the 12th Annual Earth System and Space Science Conference: 2018

Select Publications & Metrics – See google scholar for up-to-date metrics

In Review **Decker Z. C. J.**, Novak G., …, Brown S.S. Airborne Observations Constrain Heterogeneous Nitrogen and Halogen Chemistry on Tropospheric and Stratospheric Biomass Burning Aerosol

Nov 2021 **Decker Z. C. J.**, Wang S., …, Brown S.S. A Novel Analysis to Quantify Plume Crosswind Heterogeneity Applied to Biomass Burning Smoke *Environ. Sci. Technol.* 2021, 55, 23, 15646 – 15657, https://doi.org/10.1021/acs.est.1c03803

Jan 2019 **Decker Z. C. J.**, Zarzana K. J., ..., Brown S.S., Nighttime chemical transformation in biomass burning plumes: a box model analysis initialized with aircraft observations *Environ. Sci. Technol.* 2019, 53, 5, 2529-2538. doi:10.1021/acs.est.8b05359

Select Field Research Campaigns

Sep 2021 – **APPROPRIATE** | Campaign lead for VOC and particle comp. measurements
Nov 2021 *Aviation Plume PROPeRtIes AT point of Exposure*

Jun 2019 – **FIREX-AQ** | Co-operator for VOC measurements
Sep 2019 *Fire Influence on Regional to Global Environments Experiment - Air Quality*

May 2017 – **FAST-LVOS** | Instrument lead for Nitrogen Oxides measurements
Jul 2017 *Fires, Asian, and Stratospheric Transport-Las Vegas Ozone Study*

Conferences

Talks: 6   Invited Talks: 1   Posters: 7

European Aerosol Conference (*2023*)
Zürich Nanoparticle Conference (*2023*)
International Aerosol Conference (2022)
American Geophysical Union (2018 – 2021)
American Meteorological Society (2021, 2023)
CIMS Users Meetings (2018, 2022 - 2023)
Atmospheric Chemical Mechanisms (2020)

Software Proficiencies

Matlab – Fluent
Igor Pro – Fluent
Labview – Proficient
Adobe Illustrator – Fluent
Microsoft Office - Fluent

Modeling Experience

Box Modeling (5 years of experience)
Ab-inito (2 years of experience)

Instrument Experience

Measurement of Aerosol Properties
Mass Spectrometry – EESI-MS, AMS
  2 years of experience (Lab & ground)
Particle Sizing and Counts– AAC, SMPS, CPC
  2 years of experience (Lab & ground)
Analysis – above + LAS, UHSAS, NAIC, CIC
  5 years of experience analyzing and interpreting

Measurement of Trace Gasses
Spectroscopy – CRD & CE
  8 years of experience (Lab, mobile, ground, chamber)
Mass Spectrometry – VOCUS H^+ & CIMS I^-
  5 years of experience (Lab, mobile, aircraft, ground)
Analysis – above instruments
  8 years of experience analyzing and interpreting data