



Kevin Rozmiarek

kevrozmiarek.github.io

Institute of Arctic and Alpine Research, University of Colorado Boulder
4001 Discovery Drive, Boulder, CO, USA 80303

+1 512-573-8279 
kevin.rozmiarek@colorado.edu 

Education

Ph. D., Geology, Department of Geological Sciences, University of Colorado, Boulder Expected graduation July 2026
Advisors: Dr. Tyler Jones and Dr. Irina Overeem

M.Sc., Applied Physics, Department of Physics, Colorado School of Mines May 2016
Advisor: Dr. Timothy Ohno
Thesis Topic: Numerical Optimization of Ion Transport in Electrospray Mass Spectrometer Sources

B.Sc., Engineering Physics, Department of Physics, Colorado School of Mines May 2015
Advisor: Dr. Timothy Ohno
Senior Capstone Topic: Laser Ablation-Combustion Instrument Interface for Carbon Isotope-Ratio Mass Spectrometry

Professional Research Appointments

Graduate Research Assistant, Institute of Arctic and Alpine Research, CU Boulder August 2020 – Present
Advisors: Dr. Tyler Jones and Dr. Irina Overeem
Understanding the carbon isotope flux of methane derived from newly formed thermokarst permafrost features and their contribution to the Arctic methane budget using isotope-enabled biogeochemical ecosystem models.

Professional Scientist, Institute of Arctic and Alpine Research, CU Boulder April 2017 – December 2020
Supervisor: Bruce Vaughn
Operated and maintained NOAA's Global Monitoring Division's measurement network for stable isotopes of methane and carbon dioxide.

Research Contractor at United States Geological Survey May 2015 – September 2016
Advisor: Dr. Andrew Hunt
Characterized the isotope signature of water samples across the noble gas spectrum to approximate aquifer recharge rate with the USGS Noble Gas Stable Isotope Lab.

Research Assistant at Colorado School of Mines/United States Geological Survey August 2014 – May 2015
Advisor: Dr. Matthew Emmons
Designed and built a laser-ablation and combustion-furnace sample preparation device for integration into a magnetic-sector isotope-ratio mass spectrometer in collaboration with United States Geological Survey.

Research Assistant at Colorado School of Mines August 2013 – May 2014
Advisor: Dr. Stephen Pankavich
Performed work as an Undergraduate Research Fellow in the Department of Applied Mathematics & Statistics. Developed a multi-compartmental population model for stage 1 HIV-1 infections within the gut associated lymphatic tissue, bronchus associated lymphatic tissue, and the peripheral blood

Teaching Appointments

Instructor at The University of Colorado Department of Aerospace Engineering August 2024 – December 2025
Taught **Graduate Projects**, a master's graduate course which delivers a master's capstone project for a group of students. Advised two different groups, one group of four and another group of ten. Wrote and delivered lectures on engineering project lifecycle and relevant Earth science topics. Guided student delivery on final engineering product for developing their professional portfolios. August 2025 – Present

Teaching Assistant at The University of Colorado Department of Geological Sciences August 2025 – Present
Supervisor: Dr. Laura Chimiak

Taught **Water, Energy and Environment: An Introduction to Earth Resources**, a freshman level course for non-majors. Focused on an even mixture of basic geology and modern policy topics relating to subject matter. Oversaw recitations for coursework. Included mini lectures.

Assistant Teacher at The University of Colorado Department of Atmospheric and Oceanic Sciences

August 2023 – Present

Taught an **Independent Study** for two different students. Developed students' ability for independent inquiry centered around the engineering of sensors for meteorological study. Both students joined field work with project deliverables.

Teaching Assistant at The University of Colorado Department of Atmospheric and Oceanic Sciences

January 2025 – May 2025

Supervisor: Dr. Andrew Winters

Taught **Weather and Atmosphere**, a freshman level course. Led course for non-majors introducing topics on the fundamentals of the atmosphere. Oversaw recitations for coursework, included mini lectures.

Teaching Assistant at The University of Colorado Department of Atmospheric and Oceanic Sciences

January 2024 – May 2024

Supervisor: Dr. Derek Brown

Taught **Weather and Atmosphere Lab**, a freshman level course. Led lab course for non-majors introducing topics on the fundamentals of the atmosphere. Created content, oversaw lab operation, and evaluated student performance. Included mini lectures.

Teaching Assistant at Colorado School of Mines Department of Physics

January 2016 – May 2016

Supervisor: Dr. Lawrence Wiencke

Taught **Advanced Physics Lab II**, a junior level course. Led lab course on nuclear and solid-state physics with an emphasis on writing. Oversaw lab operation and evaluated student performance. Included mini lectures.

Teaching Assistant at Colorado School of Mines Department of Physics

August 2015 – December 2015

Supervisor: Dr. Frank Kowalski

Taught **Advanced Physics Lab I**, a junior level course. Led lab course on optics and atomic physics with an emphasis on experimental design. Oversaw lab operation and evaluated student performance. Included mini lectures.

Teaching Assistant at Colorado School of Mines Department of Physics

May 2014 – July 2014

Supervisor: Dr. Timothy Ohno

Taught **Field Session Techniques in Physics**, a junior level course. Worked with students on labs on the fundamentals of vacuum science, gas transport, mass spectrometry, surface characterization, and thin film deposition. Designed curriculum, lectured students, oversaw lab operation, and evaluated student performance.

Awards and Honors

2025 Graduate School Fall 2025 Domestic Travel Grant (\$650)

2025 INSTAAR Graduate Student Community Award

2025 Geology Spring 2025 Travel Award (\$1000)

2025 U.S. Open Ice Core Meeting Travel Award (\$250)

2024 U.S. Open Ice Core Meeting Travel Award (\$300)

2023 Graduate School Fall 2023 Domestic Travel Grant (\$450)

2023 Best Poster – Front Range Isotope Day

- 2023 Visiting Scholar Stipend – University of Bergen (\$1350)
- 2023 U.S. Open Ice Core Meeting Travel Award (\$300)
- 2015 Best Senior Design – Colorado School of Mines Department of Physics

Publications

- In prep Pierce E, Overeem I, Meyer C, **Rozmiarek KS**, Markle B, Morris V, Rempel A, Nunn R, “Regelation and sediment entrainment at the base of GISP-2”
- In prep **Rozmiarek KS**, Liu X, Oh Y, Overeem I, Miller EA, Morris V, Vaughn BH, Hasson NR, Chase BM, Walter-Anthony KM, Zhuang Q, Rieker GB, Jones TR, “Multi-model Insights into $\delta^{13}\text{C}$ -CH₄ from Arctic Permafrost Thermokarsts”
- In prep **Rozmiarek KS**, Town M, Morris V, Chase BM, Nunn R, Wainright S, Vaughn BH, Nunn R, Jasper-Leon R, Jones TR, “Multidecadal effects of storage sublimation on ice cores”
- Submitted Chen S, Zhu Q, Liu L, Zheng J, Jia X, Metzger S, Oh Y, Arndt KA, Malhotra A, Malone SL, McNicol G, **Rozmiarek KS**, Smith CCR, Yuan F, Yuan K, Ma Y, Chen Z, Li F, Ward E, Yang Y, Ying Q, Zhuang Q, “Next-Generation Monitoring and Modeling of Wetland Methane Dynamics through Artificial Intelligence” *Nature Climate Change*
- 2025 **Rozmiarek KS**, Schamback J, Bennett H, Yang J, Ricken B, Eberling N, Mays W, Caro T, Jones T, Smallwood C, “Microbial and Chemical Predictors of Methane Release from a Stratified Thermokarst Permafrost Hotspot” *Frontiers in Microbiology*.
- 2025 **Rozmiarek KS**, “Collecting atmospheric air with drones” *Nature Reviews Earth & Environment [Non-peer reviewed article]*
- 2025 **Rozmiarek KS**, Dietrich LJ, Vaughn BH, Town MS, Markle B, Morris V, Steen-Larsen HC, Fettweis X, Brashear CA, Bennett H, Jones TR, “Atmosphere to surface profiles of water vapor isotopes and meteorological conditions over the northeast Greenland ice sheet” *JGR Atmospheres*.
- 2025 Brashear CA, Jones TR, Morris V, Vaughn BH, Robert WHG, Skorski WB, Hughes AG, Nunn R, Ramussen SO, Cuffey KM, Vinther BM, Sowers T, Buizert C, Gkinis V, Holme C, Jensen MF, Kjellman S, Langebroek PM, Medkhalidi F, **Rozmiarek KS**, Rheinl nder JW, Simon M, Sinnl G, Smith-Johnsen S, White JWC, “Shifts in Greenland interannual climate variability lead Dansgaard-Oeschger abrupt warming by hundreds of years”. *Climate of the Past*.
- 2023 Jones TR, Cuffey KM, Roberts WHG, Markle BR, Steig EJ, Steven, CM, Valdes PJ, Fudge TJ, Sigl M, Hughes AG, Morris V, Vaughn BH, Garland J, Vinther BM, **Rozmiarek KS**, Brashear CA, White JWC, (2023) “Seasonal temperatures in West Antarctica during the Holocene”. *Nature*.
- 2021 **Rozmiarek KS**, Vaughn BH, Jones TR, Morris V, Skorski WB, Hughes AG, Elston J, Wahl S, Faber A-K, Steen-Larsen HC, (2021) “An unmanned aerial vehicle sampling platform for atmospheric water vapor isotopes in polar environments”. *Atmospheric Measurement Techniques*.

Selected Talks

- Sep 2023 **Sandia Day 2023**, Boulder – *Progress towards boreal isotope-enabled methane biogeochemical modeling*
- Aug 2023 **International Society for Atmospheric Research using Remotely piloted Aircraft Annual Meeting**, Bergen – *Whole-air sampling by uncrewed aircraft enables investigation of isotopic composition of water vapor in polar environments*
- April 2023 **CU's 17th Annual Hydrosociences Symposium**, Boulder – *Atmosphere to surface profiles of water vapor isotopes and meteorological conditions over the northeast Greenland ice sheet reveals the role of sublimation to the ice sheet hydrological cycle*

Oct 2022	University of Colorado Department of Geological Sciences Colloquium , Boulder – <i>Uncrewed aircraft sampling of atmospheric water-vapor isotopes at a Greenland ice core camp</i>
Aug 2022	Willi Dansgaard Centenary Symposium , Copenhagen – <i>Uncrewed aircraft sampling of atmospheric water-vapor isotopes at a Greenland ice core camp</i>
Aug 2019	Front Range Isotope Day (FRIday) , Boulder – <i>Flying Higher: An update to INSTAAR's water vapor isotope drone program and what it could mean for understanding the Greenland hydrological cycle</i>

Field work

2025	Navigating the New Arctic (summer) – Field leader (oversaw team of 4) – Fairbanks/Akiachak/Fort Yukon, AK
2024	Navigating the New Arctic (summer) – Field leader (oversaw team of 8) – Fairbanks, AK
2023	Navigating the New Arctic (summer) – Field leader (oversaw team of 6) – Fairbanks, AK
2023	Navigating the New Arctic (spring) – UAS Pilot – Fairbanks, AK
2022	Navigating the New Arctic (fall) – UAS Pilot – Fairbanks, AK
2022	EGRIP Ice Core Camp – UAS team lead (oversaw science team of 4) - Northeast Greenlandic Ice Stream
2019	EGRIP Ice Core Camp – UAS team lead (oversaw science team of 2) - Northeast Greenlandic Ice Stream
2017	WAIS Divide Ice Core Reprocessing - SIL Processing Line Manager (oversaw 6 undergraduates) – National Science Foundation Ice Core Facility, Lakewood, Colorado
2015	Meeker aquifer sampling – Technician – Meeker, Colorado, USA

Service and Outreach

KEY: CU (University of Colorado, Boulder), INSTAAR (Institute of Arctic and Alpine Research), CSM (Colorado School of Mines)

Review – Journal Reviewer – <i>The Cryosphere</i> , Copernicus	2025
Review – Journal Reviewer – <i>Atmospheric Chemistry and Physics</i> , Copernicus	2025
INSTAAR – INSTAAR Student Gear Closet – Started and operates a funding pool and resource for students to receive Arctic field gear based on student needs	2024 – Present
CU – UAS Advisory Committee (UAC) – Serves in an advisory role to the Associate Vice Chancellor for Public Safety Operations and Director of Flight Operations	2024 – Present
CU – Graduate Student Representative to the Geology Faculty – Representative of graduate students to academic department	2024 – 2025
INSTAAR – Search Committee for the Director of INSTAAR – Appointed by CU Research and Innovation Office to represent graduate students	2024
INSTAAR – INSTAAR Directorate Non-voting Member – Representative of graduate students on the governing body of the institute	2023 – 2025
INSTAAR – Methane Study Group – Led weekly journal club on selected methane topics	2021 – 2023
INSTAAR – INSTAAR Open House – Annually gives tours to middle school students on the role INSTAAR has in climate science	2017 – Present
CSM – Graduate Student Government – Physics department acting chair	2016
CSM – Equality through Awareness – Helped implement mentorship programs for underrepresented identity groups within the Colorado School of Mines Physics department.	2014 – 2016
CSM – Society of Physics Students - Little Shop of Physics – Visited a dozen low-income secondary schools introducing students to physics topics as a presenter and demonstrator.	2012 – 2015

Media Coverage of Research Activities

- Q3 -2026 (Interview and Feature) **Ages of Ice** – PBS – <https://deadline.com/2025/02/pbs-ages-of-ice-1236297850/>
- 2025 (Interview) The College Where Drones Are Everywhere – The Chronicle of Higher Education – <https://www.chronicle.com/article/the-college-where-drones-are-everywhere>
- 2025 (Interview) **Drone experiment reveals how Greenland ice sheet is changing** – CU Boulder Today – <https://www.colorado.edu/today/2025/03/27/drone-experiment-reveals-how-greenland-ice-sheet-changing>
- 2023 (Appearance) **The Arctic's Permafrost-Obsessed Methane Detectives** – Magazine Article – WIRED – <https://www.wired.com/story/arctic-permafrost-obsessed-methane-detectives/>
- 2023 (Interview) **På tykk is** – Documentary – NRK TV – <https://tv.nrk.no/serie/paa-tykk-is/>
- 2019 (Appearance) **Ice on Fire** – Documentary – HBO – [https://en.wikipedia.org/wiki/Ice_on_Fire_\(2019_film\)](https://en.wikipedia.org/wiki/Ice_on_Fire_(2019_film))

Et Cetera

Professional Memberships: International Permafrost Association, Permafrost Young Researcher Network, Alaska Geological Society, International Society for Atmospheric Research using remotely piloted Aircraft, ESIL AI for Natural Methane Working Group (Perspectives sub-working group leader), American Geophysical Union, European Geosciences Union

Modeling Skills: Running large scale Earth System Models on high performance computing clusters (Terrestrial Ecosystem Model, isoTEM); I hold a software licensing agreement for payload control software with Black Swift Technologies; I have worked professionally using Python, MATLAB, R, Mathematica, C++, Lua, and Java.

Software Tools: Autodesk Fusion, EAGLE, SolidWorks, LabVIEW, Inkscape, SIMION, PIX4Mapper, Microsoft Office Suite

Laboratory Skills: Isotope ratio mass spectrometry including magnetic sector, quadrupole, and ion trap; gas chromatography with combustion, pyrolysis, FID, TCD; vacuum technology; cavity ring-down spectroscopy

Fabrication and design: Machine shop fabrication; embedded system design, circuit and PCB design; 3D printing