AARON CHESLER, Ph.D.

Visiting Assistant Professor, Colorado College, Colorado Springs, CO
External Associate, Climate Change Institute, University of Maine
Rm. 130H, Tutt Science Building, 1112 N Nevada Ave., Colorado Springs, CO 80903
Work email: achesler2023@coloradocollege.edu; Office Phone Number: 719-389-7466; website: aaronchesler.weebly.com

EDUCATION

PhD. 2022	Earth and Climate Sciences, University of Maine, Orono, Maine Dissertation: *Holocene and Last Glacial Period Atmospheric Dynamics and Biogeochemistry Based on South Pole Ice Core Microparticle and Trace Element Records*, Advisors: Karl J. Kreutz and Aaron E. Putnam
MSc. 2014	Volcanology and Geological Hazards, with Merit, Lancaster University. Lancaster, UK, Thesis: *Subglacial Methane Gas Emission from Sólheimajökull Glacier, Iceland*, Advisor: Peter Wynn
BS. 2013	Geology, St. Lawrence University, Canton, NY Thesis: *Evidence of a Valley Glacier Antedating the Llewellyn Valley Glacier: an analogue for the Adirondacks?*, Advisor: Alexander Stewart

APPOINTMENTS

*****Denotes Teaching Assistant Position**

Current Position

2023 – Present	Visiting Assistant Professor, Environmental Studies, Colorado College
2023 – Present	External Associate, Climate Change Institute, University of Maine

Previous Positions

Spring 2023	Visiting Assistant Professor, Environmental Studies, Goucher College
2021 – 2023	Visiting Instructor, Environmental Studies, Goucher College
Spring 2021	Instructor, University of Maine
Spring 2020	Instructor, University of Maine
2018 – 2020	Teaching Assistant, University of Maine***
Feb. 2014	Earth Science Demonstrator***
Fall 2012	Teaching Assistant, St. Lawrence University***
Fall 2011	Teaching Assistant, St. Lawrence University***

COURSES TAUGHT

Colorado College

EV 128	Introduction to Global Climate Change (1cr)
EV 320	Advanced Topics in Environmental Science: Earth's Changing Cryosphere (1cr)
EV 351	Hydrology (1cr; Spring 2024)

Goucher College

ES 100	Environmental Science (4cr)
CPED 213	Physical Geology: Exploration of Geological Hazards (4cr)
ES 311	Environmental Analysis and Statistics (4cr)
ES 415	Climate Change (4cr)
ES 497	Senior Project (2cr)

University of Maine

ERS 102	Environmental Geology (4cr; Teaching Assistant)
ERS 191	Energy in the Earth System (3cr; Teaching Assistant)
ERS 201	Global Environmental Change (4cr w/ Lab)

Lancaster University

Earth Science Demonstrator (Teaching Assistant)

St. Lawrence University

GEO 103	Dynamic Earth (1cr w/ Lab; Teaching Assistant)
GEO 211	Geomorphology (1cr w/ Lab; Teaching Assistant)

FIELD COURSES TAUGHT

Juneau Icefield Research Program (via University of Maine)

ERS 499	Juneau Icefield Research Program (6 credits; Summer 2023)

STUDENT ADVISING

Graduate Committee

E.T.	M.S. University of Maine; Committee Member (expected 2025)

Undergraduate Research Advising

M.B. 2022 Summer Undergraduate Science Research, Goucher College
B.J. 2022 Senior Capstone Project, Goucher College

Undergraduate Academic Advising

A.B. Spring 2023, Environmental Studies Major
M.O. Spring 2023, Environmental Studies Minor

PUBLICATIONS

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Thundercloud, ZR, Cole-Dai, J, Harmon N, *Insolation-driven Southern Hemisphere Holocene warming led to westerly wind strengthening*. Submitted to Geophysical Research Letters, August 2023.

Chesler, A., Winski, D., Kreutz, K., Koffman, B., Osterberg, E., Ferris, D., Thundercloud, Z., Mohan, J., Cole-Dai, J., Wells, M., Handley, M., Putnam, A., Anderson, K., and Harmon, N., 2023, *Non-spherical microparticle shape in Antarctica during the last glacial period affects dust volume-related metrics*: Clim. Past, v. 19, no. 2, p. 477-492.

Burns, R., Wynn, PM., Barker, P., McNamara, N., Oakley, S., Ostle, N., Stott, AW., Tuffen, H., Zhou, Z., Tweed, FS., **Chesler, A**., Stuart, M., 2018, *Direct isotopic evidence of biogenic methane production and efflux from beneath a temperate glacier*, Scientific Reports, v. 8, p. 1-8, DOI: 10.1038/s41598-018-35253-2.

Works In Progress

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Thundercloud, ZR, Cole-Dai, J, Wells, M, Handley, M, Putnam, AE, Anderson, K, Harmon N, *Decoupling of fractional trace element geochemistry during southern latitudinal shift in the Southern Hemisphere Westerly Winds in Termination 1– Atmospheres*. For submission to *Geophysical Research Letters*, Winter 2023.

RESEARCH GRANTS, AWARDS, and FELLOWSHIPS IN PROGRESS

2024, **NSF OPP Antarctic Glaciology Grant**. Hercules Dome Shallow Core Microparticle Research, **A. Chesler** (Co-PI), K. Kreutz (Co-PI), D. Winski (Co-PI). Collaboration between University of Maine, Dartmouth College, Colby College, *~$500,000*

2023, **NSF Planning Grant**. Developing Regional Indigenous Culture Camps to Improve Co-Creation of Polar Research and Education. **A. Chesler** (PI), S. Campbell (Co-PI). *~$200,000*

FUNDED RESEARCH GRANTS, AWARDS, and FELLOWSHIPS

** Co-PI Status currently under-review with NSF to replace previous Co-PI

2022 – 2025, **NSF GEOPATHS #2119883** NSF: GP-IN: CUSP; Connecting Underserved Students to Polar STEM. S. Campbell (PI), **A. Chesler** (Co-PI); *$377,293***

2023, **Goucher Summer Science Undergraduate Research Program**. Goucher College Summer $PM_{2.5}$ Analysis. **A. Chesler** (PI)**;** $11,625 *

2022, **Goucher Summer Science Undergraduate Research Program.** Assessment and Calibration of $PM_{2.5}$ at Goucher College. **A. Chesler** (PI), M.B. (undergraduate student researcher); *$8,250*

2021, **University of Maine Summer Dissertation Writing Fellowship.** Holocene and Last Glacial Period Atmospheric Dynamics and Biogeochemistry based on South Pole Ice Core microparticle and trace element records. **A. Chesler** (PI), K. Kreutz (supervisor); *$5,700*

2021, **University of Maine Susan J. Hunter Fellowship**. **A. Chesler** (PI), K. Kreutz (supervisor); *$8,500*

Fall 2017, **University of Maine Graduate School Grant**. **A. Chesler** (PI), K. Kreutz (supervisor); *$425*

Spring 2017, **University of Maine Graduate School Grant**. **A. Chesler** (PI), K. Kreutz (supervisor); *$850*

Summer 2017, **University of Maine Climate Change Institute Churchill Fund**. **A. Chesler** (PI), K. Kreutz (supervisor); *$2,000*

Summer 2012, **St. Lawrence University Linus R. Gilbert Fellowship. A. Chesler**; $*3,000*

SCHOLARSHIPS

2013-2014 Santander Scholar, Lancaster University
2009-2013 University Scholar, St. Lawrence University

TEACHING TECHNIQUE EXPERIENCE

Python Coding Language, used throughout ES 311 (Goucher College) to analyze $PM_{2.5}$ from Purple Air particle monitor for problem-based learning class.
Bog Coring, drilled 5m bog core using a Dutch Corer (Eilkelkamp peat corer).
Loss on Ignition (LOI; Carbon content), measured LOI of peat collected from bog in ERS 201.
STELLA iSee systems, modelling software used to investigate reservoirs, feedbacks, and fluxes of carbon concentrations and isotopes.
Ocean Data View, students learned to download, view, and analyze geochemical data throughout Earth's oceans.

University of Maine Climate Reanalyzer, students learned how to effectively use, download, and statistically analyze data.

Scientific Writing, students learned to write qualitatively and concisely.

Reading Scientific Literature, students learned how to efficiently read scientific journals

Microsoft Office, taught/used program for simple calculations, statistics, and visualizations of in-class assignments.

Rock and Mineral Identification, igneous, sedimentary, and metamorphic rock and mineral identification.

Groundwater Flow, students used Darcy tubes and Darcy's Law to calculate groundwater flow direction and rate.

CO_2 Modeling, students used previously made model to calibrate and explore different future scenarios of CO_2 emission rates.

River Geomorphology, used Google Earth to measured stream geomorphology (slope, sinuosity, channel morphology), discharge and drainage area relationships, and flood probability rates.

Coastal Geomorphology, students explored and anthropogenic geomorphological changes to coastal Maine and various other deltas.

Peat Energy Analysis, students used empirical relationships to measure Maine's peat as a carbon resource and identify energy consumption trends.

Earthquakes, students collected, graphed, and analyzed through Microsoft Excel of earthquake model data.

Geomorphological Azimuthal Analysis, designed, taught, and graded laboratory exercise while an undergraduate student focusing on directional analysis of geomorphological features to assess paleo-glacier flow.

RESEARCH TECHNIQUE EXPERIENCE

Atmospheric Particulate Matter ($PM_{2.5}$), installed and collected atmospheric particulate matter for undergraduate student summer research and course material.

Water Isotopes, collected, prepped, and analyzed snow and water samples.

FlowCAM, a novel technique for ice core research; South Pole Ice core microparticles were imaged and aspect ratios measured.

Python Coding Language, Proficient in data management and visualization (managed > 1 3,000,000 datum). Python modules used: pandas, numpy, scipy, scikit-learn, matplotlib, and seaborns.

Geochemistry Analyses, utilized hydrofluoric-nitric digestions, nitric acidifications, and sodium-acetate buffer solution for PhD research for more than 3,200 samples.

Abakus Particle Counter, used with Continuous Flow Analysis to continually count particles in South Pole ice core. Co-wrote cleaning script for Python.

Coulter Counter, measured particle volume for selected samples from South Pole Ice Core.

Continuous Flow Analysis, method used for melting South Pole Ice Core (SPICEcore), worked with melting in January- February 2017.

Clean Laboratory Cleaning, responsible for cleaning PhD. Laboratory suitable for trace element analysis (ppt).

Gas Chromatography, principal methodology for analyzing methane gas samples in MSc research.

ArcGIS, used in internship along with Trimble GPS system to update culvert inventory for several central Vermont counties.

Microsoft Office (e.g. Microsoft Excel, Microsoft Word, and Microsoft PowerPoint) Used throughout undergraduate and graduate coursework and research to compile, analyze, interpret, and present professional data.

Adobe Illustrator, Used throughout undergraduate and graduate coursework and research to compile, analyze, interpret, and present professional data.

Bog Coring, assisted with sampling of 15-meter cor from a Northern Adirondack bog.

Stratigraphic Section Logging, completed as part of Sedimentology class research on Cincinnati carbonate arch.

Sieve Sediment Sampling, sampling method used throughout undergraduate education.

Photogrammetry, used Stereopairs and aerial images to map surficial features of a Canadian nunatak on the Juneau Icefield.

Stereonet 7, online program used in undergraduate research to create rose diagram of azimuthal data collected on Juneau Icefield Research Program.

INVITED TALKS

2017	Dartmouth College Seminar Series, Hanover, NH
2016	Franz Josef Glacier Guides, Franz Josef Glacier, New Zealand
2015	Juneau Icefield Research Program, AK

OUTREACH

2022	Taught Goucher College Summer Launch Program Course
2019	Co-developed weeklong Upward Bound Maine science course focused on understanding analyzing climate change, Orono, Maine
2019	Maine Upward Bound Science and Engineering Judge
2018	Summer school session on ice cores and climate, Newport, Maine
2018	Maine Upward Bound Science and Engineering Judge
2017	Maine Upward Bound Science and Engineering Judge
2017	Panelist for Maine Upward Bound
2015	Panelist for St. Lawrence University Geology Alumni Conference

PROFESSIONAL SERVICE

2022	Open Ice Core Conference Session Moderator
2019-2020	Visiting Speaker Coordinator, School of Earth and Climate Sciences, University of Maine, Orono, Maine

CONFERENCES/WORKSHOPS ATTENDED

****** Denotes Oral Presentation***

2023	Open Ice Core Science Meeting, Seattle, WA
2022	National American Geophysical Union Conference, Chicago, IL

2022 International Partnership in Ice Core Science, Crans-Montana, Switzerland***
2022 Open Ice Core Science Meeting, La Jolla, CA***
2021 National American Geophysical Union Conference, New Orleans, LA
2020 Climate Change Institute Borns Symposium, Orono, ME***
2020 National American Geophysical Union Conference, Online
2019 National American Geophysical Union Conference, San Francisco, CA
2019 South Pole Ice Core Conference, Seattle, WA***
2019 Ice Core Data Workshop, Orono, ME
2019 Climate Change Institute Borns Symposium, Orono, ME
2018 National American Geophysical Union Conference, Washington, D.C.
2018 Northeast Geological Society of America Conference, Portland, ME***
2018 RICE Conference, Orono, ME
2018 Climate Change Institute Borns Symposium, Orono, ME***
2017 South Pole Ice Core Conference, Seattle, WA
2017 Climate Change Institute Borns Symposium, Orono, ME
2016 Ice Core Analysis Techniques, Copenhagen, Denmark
2016 South Pole Ice Core Conference, La Jolla, CA

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (2017 – Present)
Geological Society of America (2012 – 2019)
Sigma Gamma Epsilon (2011 – 2013)

PEDAGOGICAL TRAINING

2022 Goucher College, Problem Based Learning
2021 University of Maine, Center for Innovation in Teaching and Learning Graduate Teaching Academy and Book Club

CONFERENCE ABSTRACTS

*** Denotes advisee/student presenter

Tipton, Osterberg, E.C., Koffman, B.G., Kurbatov, A., Chalif, J., Adelman, Anderson, K., **Chesler, A**., Ferris, D., Kreutz, K., Cole-Dai, J., 2023, *Causes of the Late Holocene Dust Spike in Antarctic Ice Cores*, Abstract Submitted to American Geophysical Union Conference, San Francisco, CA.

Chesler, A, Winski, D, Kreutz, KJ, Koffman, BG, Osterberg, EC, Ferris, D, Thundercloud, ZR, Cole-Dai, J, Wells, M, Putnam AE, and Anderson, K, 2023, *Trends in South Pole Particle Concentrations Imply Holocene Westerly Wind Strengthening*, Abstract Submitted to American Geophysical Union Conference, San Franciso, CA.

Tipton, Osterberg, E.C., Koffman, B.G., Kurbatov, A., Chalif, J., Adelman, Anderson, K., **Chesler, A**., Ferris, D., Kreutz, K., Cole-Dai, J., 2023, *What caused the Late Holocene Dust Increase in Antarctic Ice Cores?*, Abstract presented at Open Ice Core Conference, Seattle, WA

Chesler, A, Winski, D, Kreutz, KJ, Koffman, BG, Osterberg, EC, Ferris, D, Thundercloud, ZR, Cole-Dai, J, Wells, M, Putnam AE, and Anderson, K, 2023, *Opposing trends in South Pole Holocene fine and coarse particle concentrations imply Southern Hemisphere warming and westerly wind strengthening*, Abstract presented at Open Ice Core Conference, Seattle, WA.

Chesler, A, Koffman, BG, Winski, D, Kreutz, KJ, Osterberg, EC, Wells, M, Handley, M, Ferris, D, Thundercloud, ZR, Cole-Dai, J, Putnam AE, and Harmon, N, 2022, *Decreased atmospheric iron solubility during the Last Glacial Maximum in the high latitude Southern Hemisphere*, Abstract presented at National American Geophysical Union Conference, Chicago, IL.

Kreutz, KJ, **Chesler, A**, Winski, D, Koffman, BG, Osterberg, EC, Ferris, D, Thundercloud, ZR, Cole-Dai, J, Wells, M, Putnam AE, and Anderson, K, 2022, *Opposing trends in South Pole Holocene fine and coarse particle concentrations imply Southern Hemisphere warming and westerly wind strengthening*, Abstract presented at National American Geophysical Union Conference, Chicago, IL.

Chesler, A, Koffman, BG, Winski, D, Kreutz, KJ, Osterberg, EC, Wells, M, Handley, M, Ferris, D, Thundercloud, ZR, Cole-Dai, J, Putnam AE, and Harmon, N, 2022, *Decreased atmospheric iron solubility during the Last Glacial Maximum in the high latitude Southern Hemisphere*, Abstract presented at International Partnership in Ice Core Sciences: Ice Core Science at the three Poles, Crans-Montana, Switzerland.

***Boye, Mame and **Chesler, A.**, 2022, *Assessment of Rush Hour Pollution Impact on Air Quality at Goucher College, Towson, MD*, Abstract presented at annual Landmark Conference Summer Research Symposium, Bethlehem, PA.

Chesler, A, Winski, D, , BG, Kreutz, Koffman, KJ, Osterberg, EC, Ferris DG, Thundercloud, ZR, Mohan, J., Cole-Dai, J, Wells, M, Handley, M, Putnam, AE, Anderson, K, Harmon N, 2021, *Size and time-dependent microparticle shape variability in Antarctica during the past 54,000 years*., Abstract presented at National American Geophysical Research Union Conference, New Orleans, LA.

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Thundercloud, ZR, Cole-Dai, J, Wells, M, Handley, M, Putnam, AE, Anderson, K, Harmon N, 2020, *Decoupled acid reactive and biologically relevant race element concentrations during Termination 1 in the South Pole Ice Core,* Abstract presented at National American Geophysical Union Conference, Online.

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Thundercloud, ZR, Cole-Dai, J, Wells, M, Handley, M, Putnam, AE, Anderson, K, Harmon N, 2019, *Aerosol Iron Delivery and Geochemistry across Termination I: A New Record from the South Pole Ice Core*, Abstract presented at National American Geophysical Union Conference, San Francisco, CA.

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Cole-Dai, J, Wells, M, Handley, M, Putnam, A, 2019, *Holocene Particle-size-distribution (PSD) from South Pole*

Ice Core (SPICEcore), Abstract presented at Northeast Geological Society of America Conference, Portland, ME.

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Cole-Dai, J, Wells, M, Handley, M, 2018, *Holocene Fractional Trace Element Concentrations from the South Pole Ice Core (SPICEcore)*, Abstract presented at National American Geophysical Union Conference, Washington D.C.

Chesler, A, Koffman, BG, Kreutz, KJ, Osterberg, EC, Winski, D, Ferris DG, Cole-Dai, J, Wells, M, Handley, M, 2017, *Annually resolved Holocene record of dust deposition and size distribution from the South Pole*, Abstract presented at National American Geophysical Union Conference, New Orleans, L.A.

Chesler, A and Stewart, A, 2012, *Evidence of a Valley Glacier Antedating the Llewellyn Valley Glacier, Juneau Icefield, Canada: an Analogue for the Adirondacks?"* Abstract presented at National Geological Society of America Conference, Charlotte, N.C.

FIELD EXPERIENCE/SKILLS

2023	Juneau Icefield Research Program Teaching Faculty
2020	Maine water bodies isotope data collection, Baxter State Park, Millinocket, ME
2017	Ground Penetrating Radar and shallow ice cores, Quinto Sello Glacier, Mt. Logan, Canada
2016	Guide, Franz Josef Glacier Guides, Franz Josef Glacier, New Zealand
2015	Safety Staff, Juneau Icefield Research Program, Juneau, AK
2015	Ski Instructor, Mad River Glen, Fayston, VT
2014	Collected gas samples for methane analysis, Solheimajokul, Iceland
2013	Student researcher aboard *R/V Nautilus*, Gulf of Mexico
2012	Ski Instructor, Mad River Glen, Fayston, VT
2011	Student, Juneau Icefield Research Program
2011	Ski Instructor, Mad River Glen, Fayston, VT