

Dr. Allison P. Lepp *she/her*
allison.lepp.91@gmail.com | www.aplepp.com

EDUCATION

- Ph.D. in Environmental Sciences** July 2023
University of Virginia
Charlottesville, Virginia, USA
Dissertation: Investigating Antarctic subglacial hydrologic processes from marine sediment cores
Advisor: Dr. Lauren Miller
- M.S. in Earth and Environmental Studies** May 2018
Montclair State University
Montclair, New Jersey, USA
Thesis: Geochemical and Sedimentological Analysis of Marine Sediments from ODP Site 696 and Implications for the Onset of Antarctic Glaciation
Advisor: Dr. Sandra Passchier
- B.S. in Geology** May 2014
Georgia State University
Atlanta, Georgia, USA
Concentration in Environmental Geology
Magna cum Laude

PROFESSIONAL APPOINTMENTS

- National Oceanic and Atmospheric Administration**, Washington, DC, USA Feb. 2024 - Present
NOAA Sea Grant Knauss Marine Policy Fellow
Arctic Research Program; Global Ocean Monitoring and Observing
- University of Virginia**, Charlottesville, Virginia, USA Aug. 2023 – Jan. 2024
Postdoctoral Researcher
- Virginia Marine Resources Commission** Ft Monroe, Virginia, USA May – Aug. 2022
Commonwealth of Virginia Engineering and Science (COVES) Fellow
- United Nations Environment Programme** New York City, New York, USA May – Aug. 2018
Intergovernmental and Interagency Affairs Fellow
- Golder Associates** Atlanta, Georgia, USA June 2015 – Feb. 2016
Soils & Geosynthetics Laboratory Technician

RESEARCH APPOINTMENTS

- Ph.D. Researcher** University of Virginia June 2019 - present
- Prepare, analyze, and describe marine sediment samples using laser particle size analysis, x-ray fluorescence, magnetic susceptibility, smear slide description
 - Collect images and elemental spectra of glacial grains using a Quanta 650 scanning electron microscope and energy dispersive spectroscopy
 - Prepare marine sediment samples for meteoric beryllium analysis via accelerated mass spectrometry
 - Write scripts for use in software, including R, Matlab, and ArcPro, to perform various statistical, image, and geospatial analyses
 - Develop protocols for lab instruments including handheld XRF and magnetic susceptibility sensor
 - Prepare and analyze sediment porewater samples via dual-inlet mass spectrometry at the United States Geological Survey Reston Stable Isotope Lab

- Develop and maintain positive collaborations with researchers at other national and international institutions

M.S. Researcher Montclair State University

Sept. 2016 – May 2018

- Conduct extensive literature review of the Eocene-Oligocene transition with an emphasis on nascent Antarctic glaciation
- Prepare and analyze marine drill core sediments for laser particle size analysis, including mechanical sonication, treatment with NaOH, HCl, and centrifuge separation
- Perform sample preparation and analysis using inductively-coupled and optical-emission mass spectrometry methods; involved sample fusion and acid digestion
- Construct an age model using taxa identified from other core sections

PEER-REVIEWED PUBLICATIONS

- Lepp, A.P.**, Miller, L.E., Willenbring, J.K., Herbert, L.C., Munevar Garcia, S., Smith, J.A., Hillenbrand, C.-D., and Wellner, J.S.: Isotopic evidence of subglacial meltwater discharge preserved in sediment porewaters from the Amundsen Sea, West Antarctica [*in preparation for submission to Geophysical Research Letters*]
- McKenzie, M.A., Miller, L.E., **Lepp, A.P.**, and DeWitt, R.: Evidence of solid Earth influence on stability of the marine-terminating Puget Lobe of the Cordilleran Ice Sheet, *Climate of the Past* [*in review*], doi: 10.22541/essoar.169903694.47074489/v1, 2024.
- Lepp, A.P.**, Simkins, L.M., Anderson, J.B., O'Regan, M., Winsborrow, M.C.W., and four others: Insights into subglacial processes from silt-sized grain micromorphology, *The Cryosphere Discuss.* [*preprint*], doi: 10.5194/tc-2023-70, 2023.
- Herbert, L.C., **Lepp, A.P.**, and eight others: Volcanogenic fluxes of iron from the seafloor in the Amundsen Sea, *Marine Chemistry*, 104250, doi: 10.1016/j.marchem.2023.104205, 2023.
- Clark, R.W. and 14 others including **Lepp, A.P.**: Synchronous retreat of Thwaites and Pine Island glaciers in response to external forcings in the pre-satellite era, *Proceedings of the National Academy of Sciences* (*in press*).
- Simkins, L.M., Greenwood, S.L., Winsborrow, M.C.W., Bjarnadóttir, L.R., and **Lepp, A.P.**: Advances in understanding subglacial meltwater drainage from past ice sheets, *Annals of Glaciology*, 1-5, doi: 10.1017/aog.2023.16, 2023.
- Hojnacki, V., **Lepp, A.P.**, Castaldo, J.H., States, A., Li, X., and Passchier, S.: Impact of Eocene-Oligocene Antarctic glaciation on the paleoceanography of the Weddell Sea, *Paleoceanography and Paleoclimatology*, 37, e2022PA004440, doi: 10.1029/2022PA004440, 2022.
- Lepp, A.P.**, Simkins, L.M., Anderson, J.B., Clark, R.W., Wellner, J.S., Hillenbrand, C.-D., and 14 others: Sedimentary signatures of persistent subglacial meltwater drainage from Thwaites Glacier, Antarctica., *Frontiers in Earth Science*, 10, 863200, doi: 10.3389/feart.2022.863200, 2022.

LEADERSHIP and COMMUNITY SERVICE

Polar Impact Co-Organizer

June 2020- Present

Lead organizer of the Polar Impact Mentorship Initiative

American Geophysical Union Local Science Partner

Dec. 2022 – Dec. 2023

UVA Graduate Student Association Leadership

May 2021 – May 2022

Graduate Student Representative to the Faculty

36th Annual EnviroDay Research Symposium Co-Chair

November 2021 – Feb. 2022

UVA Department of Environmental Sciences URGE Pod

Feb – May 2021

World Environment Day Festival Coordinator United Nations Headquarters

June 2018

PROFESSIONAL DEVELOPMENT & MENTORING

Congressional Visitation Day with the AGU Local Science Partners	June 2023
Spatial Data Science: The New Frontier in Analytics	Fall 2022
ESRI Massive Open Online Course	
PhD+ Series University of Virginia	
Writing Op-Eds	Fall 2022
Data Literacy in R	Spring 2021
Science Policy Bootcamp	Jan. 2021
Research Communication Series	Fall 2020
Mentoring	
Polar Impact Mentoring Initiative Organizing Team Lead	
<i>Fundamentals of Learning for Science Mentors</i> , a 6-week short course	Spring 2021
Undergraduate Advisees:	
○ Tahi Wiggins, UVA Class of 2023	Aug. 2021 – May 2023
Project: Morphometry of Glacigenic and Periglacial Lakes across Canada	
Distinguished Majors Program	
○ Alma Salisbury, Elizabeth City State University Class of 2022	May – Aug. 2021
Project: The geometry of glacial lakes in Antarctica and South America	
Louis Stokes Alliances for Minority Participation VA-NC Alliance Program	
○ Delaney Buskard, UVA Class of 2021	Aug 2019 – May 2021
Project: Grain-scale characteristics of meltwater plume deposits offshore	
of Thwaites Glacier, Antarctica	
Senior Thesis	

SELECT CONFERENCE ABSTRACTS

- Lepp, A.P.**, Herbert, L.C., Goordial, J., Dryák-Vallies, M.C., and Legg, S. (2023). Mentorship for Historically-Excluded Racial and Ethnic Groups in Polar Science: Lessons Learned from the Polar Impact Mentorship Initiative Pilot Program (2022-2023). American Geophysical Union. (*oral*)
- McKenzie, M., Miller, L., **Lepp, A.**, DeWitt, R. (2023). Outcrop Perspectives on Spatial and Temporal Effects of Topography on the Marine-terminating Puget Lobe of the Cordilleran Ice Sheet. American Geophysical Union. (*oral*)
- Lepp, A.P.**, Simkins, L.M., Anderson, J.B., and O'Regan, M. (2022). Subglacial processes inferred from grain-shape alteration of till and meltwater plume deposits from Antarctica and Greenland. American Geophysical Union. (*oral*)
- Herbert, L.C., **Lepp, A.P.**, and six others (2022). A potential benthic source of nutrient iron driving productivity in the Amundsen Sea in the context of current and past glacial retreat. American Geophysical Union. (*poster*)
- Pavia, F., Clark, R., **Lepp, A.**, and four others (2022). Calibrating extraterrestrial ³He in ice-proximal marine sediments as a quantitative proxy for past West Antarctic Ice Sheet melt rates. WAIS Workshop. (*poster*)
- Simkins, L.M., **Lepp, A.P.**, Anderson, J.B., Clark, R.W., Wellner, J.S., Hillenbrand, C.-D. and eight others (2022). Sedimentary signatures of persistent subglacial meltwater drainage from Thwaites Glacier, Antarctica, American Quaternary Association. (*oral; invited*)
- Wellner, J.S., Clark, R.C., Lehrmann, A., **Lepp, A.P.** and 12 others (2022). Pre-satellite retreat of Thwaites and Pine Island glaciers: Recent results from sediment cores. European Geophysical Union. (*oral; invited*)
- Wiggins, T., Munevar Garcia, S., **Lepp, A.P.**, Simkins, L.M., 2022. Morphometry of glacigenic lakes in North America. Southeast GSA Annual meeting. (*oral*)

- Lepp, A.**, Simkins, L., Anderson, J.B., and Buskard, D.X. (2021). Distinguishing modes of subglacial sediment transport with micron-scale imagery of grain microtextures. UVA Department of Environmental Sciences EnviroDay Symposium. (*oral*)
- Herbert, L.C., **Lepp, A.**, and four others (2021). Benthic biogeochemistry and trace metal fluxes near the Thwaites and Pine Island Glaciers, Amundsen Sea. Goldschmidt. (*oral*)
- Lepp, A.**, Simkins, L., and 12 others (2020). Persistent meltwater discharge from Thwaites Glacier recorded in offshore sediments. American Geophysical Union. (*poster*)
- Lepp, A.**, Simkins, L. and 8 others. (2019). Thwaites Glacier's recent meltwater history recorded in ice shelf proximal sediment cores. WAIS Workshop. (*poster*)
- Lepp, A.**, Passchier, S., and Light, J. (2017). Sedimentological and Geochemical Analysis of Marine Sediments from ODP Site 696 and Implications for the Onset of Antarctic Glaciation. Past Antarctic Ice Sheet Dynamics. (*poster*)

FIELD and EXPEDITION EXPERIENCE

- Marine Geologist** Amundsen Sea, West Antarctica Jan – March 2020
Expedition *NBP20-02* (co-chief scientists J.S. Wellner and R.D. Larter)
Sediment coring, acoustic bathymetric mapping, oceanographic surveys
- IODP-PAIS Antarctic School Invited Participant** College Station, Texas, USA June 2019
One of 25 international early-career researchers chosen to participate in week-long lecture and lab-based curriculum
Drill core descriptions, smear slide analysis, iTRAX XRF scanning, interpreting seismic profiles
- Field Teaching Assistant** New Jersey School of Conservation May 2017
Co-led undergraduate field camp in collection and interpretation of geophysical, hydrological, and soil measurements
- Geology Field Camp** Dillon, Montana, USA June – July 2013
Mapping of Mesozoic to Quaternary geologic structures and deposits

AWARDS, HONORS, and RECOGNITIONS

- Jay Zeiman Research Publication Award** May 2023
Department of Environmental Sciences, University of Virginia
- Antarctic Service Medal** July 2020
United States Department of Defense
- Recognition of Excellence in Research Award** May 2018
College of Science and Mathematics, Montclair State University
- Outstanding Teaching Assistant Award** May 2018
Department of Earth and Environmental Studies, Montclair State University
- Appalachian Trail Thru-Hiker** Feb – July, 2016
Appalachian Trail Conservancy
- David E. Ogren Endowed Scholarship** April 2014
Department of Geosciences, Georgia State University
- Travel Awards**
- WAIS Workshop (Julian, CA, USA; *Oct. 2019*)
 - IODP & PAIS Antarctic School (College Station, TX, USA; *June 2019*)
 - PAIS Conference (Trieste, Italy; *Sept. 2017*)

TEACHING APPOINTMENTS

University of Virginia Department of Environmental Sciences
Instructor of Record:

- Marine Geology Lab – In-person (*Spring 2023*)
- Fundamentals of Geology Lab – In-person (*Fall 2021; Spring 2022; Fall 2022*)
- Physical Hydrology Lab - Virtual (*Spring 2021*)
- Fundamentals of Geology Lab - Virtual (*Fall 2020*)

Teaching Assistant:

- Fundamentals of Geology Lecture (*Fall 2019*)

Montclair State University Department of Earth and Environmental Studies

Teaching Assistant:

- Sedimentology and Stratigraphy (*Spring 2018*)
- Structural Geology (*Fall 2017; Spring 2017*)
- Physical Geology (*Fall 2016*)