

JOANMARIE DEL VECCHIO

Department of Earth Sciences and Neukom Institute for Computational Science, Dartmouth College
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EDUCATION

- August 2021 **Ph. D., The Pennsylvania State University**, Geoscience
Advisor: Dr. Roman A. DiBiase
Thesis: Appalachian Pasts, Arctic futures: permafrost landscape response to warming
- December 2017 **M.S., The Pennsylvania State University**, Geoscience
Advisor: Dr. Roman A. DiBiase
Thesis: A record of coupled hillslope and channel response to Pleistocene periglacial erosion in a sandstone headwater valley, central Pennsylvania
- May 2015 **B.A., Pomona College**, Geology
Advisors: Dr. Karl A. Lang, Dr. Colin Robins
Thesis: Mechanisms for valley aggradation in Cow Canyon, San Gabriel Mountains, CA
- Fall 2013 **The University of Edinburgh**, UK (study abroad)
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APPOINTMENTS

- Spring 2024 **College of William and Mary**, Assistant Professor of Geology
- Fall 2021-present **Dartmouth College**, Postdoctoral Fellow, Neukom Institute for Computational Science
Conduct interdisciplinary research with computational theme and teach one course per year
- Fall 2015-Spring 2021 **The Pennsylvania State University**, teaching/research assistant
Conduct research and support faculty in lecture and lab courses
- Summer 2019 **Los Alamos National Laboratory**, graduate researcher
Assisted lab scientists in collecting and interpreting field and remotely sensed data and model development within the NGEE- Arctic program
- Summer 2016-2018 **The Pennsylvania State University**, teaching assistant, field school
Provided logistical and teaching support for 30-50 undergraduate students in a six-week field course
- Summer 2015, 2016 **Research Experience for Undergraduates**, mentor
Directed field and computer lab work for three undergraduate students at the Shale Hills Critical Zone Observatory
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TEACHING

Instructor: Dartmouth College

EARS 33: Earth Surface Processes and Landforms

EARS 45: Field Methods: Techniques of Structural and Stratigraphic Analysis

Teaching assistant: Penn State University

GEOSC 10: Geology of the National Parks

GEOSC 303: Introduction to Environmental Geology

GEOSC 310: Earth History

GEOSC 340: Geomorphology

HONORS AND AWARDS

2023	Dartmouth College Earth Sciences mentorship award
2020	Marie Morisawa Award, Quaternary Geology and Geomorphology Division, GSA Richard R. Parizek Graduate Fellowship, Alley Family Graduate Scholarship
2019	Wiley (now Mike Kirkby) Award, British Society of Geomorphology Scholten-Williams-Wright Scholarship
2018	First place, Penn State Energy and Environmental Sustainability Laboratories Green Dollars grants Pennsylvania Space Grant Graduate Fellowship Richard R. Parizek Graduate Fellowship
2017	Alley Family Graduate Scholarship First place in physical sciences and mathematics category, Penn State Graduate Exhibition
2016	Marie Morisawa Award, Quaternary Geology and Geomorphology Division, GSA
2015	Raymond V. Ingersoll Senior Thesis Award, SEPM – Pacific Section

AWARDED RESEARCH GRANTS

2023	National Science Foundation Award # 2311319 “Elements: A workflow for efficient and reproducible permafrost geomorphology analysis” Office of Advanced Cyberinfrastructure, \$393,758
2022	Google Cloud Climate Innovation Challenge awardee
2021	NSF Earth Sciences Postdoctoral Fellowship, recommended for funding (<i>declined</i>)
2020	Geological Society of America student research grant American Association of Petroleum Geologists Grant-in-Aid
2019	Department of Energy Office of Science Graduate Student Research (SCGSR) awardee

PUBLICATIONS

Peer-reviewed

[8] **Del Vecchio, J.**, Palucis, M. C. and Meyers, C. R. (in press at *Proceedings of the National Academy of Science*), Permafrost extent sets drainage density in the Arctic

[7] **Del Vecchio, J.**, Ivory, S. J., Mount, G. M., Leddy, M., DiBiase, R. A. (in press at Quaternary Research), Hillslope and vegetation response to postglacial warming at Bear Meadows Bog, Pennsylvania, USA doi:10.1017/qua.2023.60

[6] **Del Vecchio, J.**, Zwieback, S., Rowland, J. C., DiBiase, R. A., and Palucis, M. C. (2023), Hillslope-channel transitions and the role of water tracks in a changing permafrost landscape) *Journal of Geophysical Research: Earth Surface* doi.org/10.1029/2023JF007156

[5] **Del Vecchio, J.**, Lathrop, E., Dann, J. B., Andresen, C. G., Collins, A. D., Fratkin, M. M., Zwieback,

S. Glade, R. C., and Rowland, J. C. (2023), Patterns and rates of soil movement and shallow failures across several small watersheds on the Seward Peninsula, Alaska. *Earth Surface Dynamics* doi:10.5194/esurf-11-227-2023

[4] **Del Vecchio, J.**, DiBiase, R. A., Corbett, L., Bierman, P. R., Caffee, M.W., and Ivory, S. J., (2022) Increased erosion rates following the onset of Pleistocene periglaciation at Bear Meadows, Pennsylvania, USA. *Geophysical Research Letters* doi:10.1029/2021GL096739

[3] Li, L., DiBiase R. A., **Del Vecchio J.**, et. al. (2018), Investigating the Effect of Lithology and Agriculture at the Susquehanna Shale Hills Critical Zone Observatory (SSHCZO): The Garner Run and Cole Farm Subcatchments. *Vadose Zone Journal* doi.org/10.2136/vzj2018.03.0063

[2] **Del Vecchio, J.** DiBiase, R. A., Denn, A. Bierman, P., Caffee, M.W., and Zimmerman, S. R. (2018), Record of coupled hillslope and channel response to Pleistocene erosion and deposition in a sandstone headwater valley, central Pennsylvania. *Bulletin of the Geological Society of America* doi.org/10.1130/B31912.1

[1] **Del Vecchio, J.**, Lang, K. A., Robins, C. R., McGuire, C. and Rhodes, E. (2018), Storage and weathering of landslide debris in the eastern San Gabriel Mountains, California, USA: implications for mountain solute flux. *Earth Surface Processes and Landforms* doi.org/10.1002/esp.4427

In review/revision

Other publications

Gold, D., et al. (including **J. Del Vecchio**), 2017. Recent geologic studies and initiatives in central Pennsylvania: Roadlog for the 82nd annual field conference of Pennsylvania Geologists, 132 pp.

SERVICE AND OUTREACH

Students mentored

2023	Rebecca Risch, Neukom Scholar Winter 2023 Sade Francis, Stefansson Fellow Winter 2023 Molly Stevens, Summer 2023
2022	Supriya Ganti and Maya Magee, WISP researchers
2019-2020	Danial Sukor, senior thesis
2017-2018	Rosellen Martin, WISER student
2016	Perri Silverhart and Connor Martin, REU students
2015	Sarah Granke, REU student

Public lectures and outreach

2019	Appalachian Outdoors, “The Geology of Central Pennsylvania”
2018, 2019	Guest Lecturer, SCIED 455 (Penn State)
2016-2019	Collaboration with Shavers Creek Environmental Center

Professional service and synergistic activities

2023	Workshop convener, “Changing permafrost landscapes: computational approaches” Dartmouth College and Neukom Institute Session primary convener, “Changing Permafrost Landscapes” American Geophysical Union Fall Meeting in San Fransico, CA
2022	Session co-convener, “Changing Permafrost Landscapes” American Geophysical

	Union Fall Meeting in Chicago, IL
	NSF Panelist
2021	AGU Earth and Planetary Surface Processes URGE pod organizer and participant GSA Quaternary Geology and Geomorphology Division, Early-Career Representative
2020-2021	AGU Earth and Planetary Surface Processes social media team
2019	Session convener, “Inverting source from sink: decoding sedimentary records of climate, vegetation and erosion,” Geological Society of America Annual Meeting in Phoenix, AZ
2017-2019	PSU Association for Women in Geoscience, co-president
2017	Conference organizer, 6 th Annual Amtrak (now Wolman) Club Meeting, Penn State University

INVITED SEMINARS

2023	Washington University at St. Louis Amherst College, Eastman Lecture Series
2022	Lamont Dougherty Earth Observatory Biology and Paleoenvironment Seminar Middlebury College Williams College Colgate University Technology Immersion Week (keynote)
2021	Lehigh University
2020	Landscapes Live (Webinar, hosted through European Geophysical Union)
2019	Franklin and Marshall College

SELECTED CONFERENCE PRESENTATIONS

Del Vecchio, J., Meyer, C. R., Palucis, M. C., and Risch, R*. “Ground temperature sets drainage density in the Arctic.” American Geophysical Union Fall Meeting 2022, Chicago, IL.

+**Del Vecchio, J.**, “Demonstrating open, reproducible science tools through study of Earth’s changing surface.” American Geophysical Union Fall Meeting 2022, Chicago, IL.

Del Vecchio, J., Rowland, J., Zwieback, S., DiBiase, R., Glade, R. “Topographic signatures of permafrost processes on the Seward Peninsula, Western Alaska.” American Geophysical Union Fall Meeting 2021.

Del Vecchio, J. et al. “URGE pod outcomes for the AGU EPSP Section.” American Geophysical Union Fall Meeting 2021.

+**Del Vecchio, J.**, DiBiase, R. A., Corbett, L. B., Bierman, P. R., Caffee, M., Ivory, S. J. “Erosion rates before and after the Mid-Pleistocene Transition in periglacial central Appalachia.” American Geophysical Union Fall Meeting 2020.

+**Del Vecchio, J.**, Ivory, S. J., Leddy, M., Mount, G. and DiBiase, R. A. “Paired paleoerosion-paleoecological record of postglacial landscape change, central Appalachia” Geological Society of America annual meeting 2020

Del Vecchio, J., Fratkin, M. M., Lathrop, E., Andresen, C. G., Collins, A., Crawford, B., Dann, J. B., Wilson, C. J., Adams, J. M., Rowland, J. C. “Measuring and modeling periglacial hillslope processes,

Seward Peninsula, western Alaska” American Geophysical Union Fall Meeting 2019, San Francisco, CA 8-13 Dec.

Del Vecchio, J. et al., “Student-led organizations as a mechanism for improving department culture.” American Geophysical Union Fall Meeting 2019.

Del Vecchio, J., DiBiase, R., Corbett, L. B., Bierman, P., Caffee, M. W. and Ivory, S. “Pleistocene climate-modulated erosion: interpretations from cosmogenic nuclide concentrations of an 18 m sediment core in central Appalachia.” 2019 GSA Annual Meeting, Phoenix, AZ 22-25 Sept.

+**Del Vecchio, J. et al.** “Long term records of climate change preserved in upland landscapes.” (Invited) 2019 British Society of Geomorphology Annual Meeting, Sheffield, UK, 9-11 Sept.

Del Vecchio, J., DiBiase, R.A., Carr, J.C., Greenberg, E., Hajek, E.A. (2018) “Stratigraphic controls on bedrock channel morphology in the Finger Lakes, New York, USA.” 2018 AGU Fall Meeting, Washington, D.C., 10-14 Dec.

+**Del Vecchio, J.** (2018) “Reading rocks and ground that once were cold but now are not.” (Up-Goer Five Challenge) 2018 AGU Fall Meeting, Washington, D.C., 10-14 Dec.

+**Del Vecchio, J.,** DiBiase, R., Bierman, P., and Denn, A. “A Quaternary record of periglacial surface processes preserved in a headwater valley in central Pennsylvania.” 2017 AGU Fall Meeting, New Orleans, LA 11-15 Dec.

DiBiase, R., **Del Vecchio, J.,** Mount, G., Hayes, J., Comas, X., Lin, H., Zarif, F., Forsythe, B., and Brantley, S. “Quantifying the spatial variability in critical zone architecture through surface mapping and near-surface geophysics (Invited)” 2016 AGU Fall Meeting, San Francisco, CA 14-18 Dec.

Del Vecchio, J. DiBiase, R. A., Denn, A. R., Bierman, P. R. A record of coupled hillslope and channel response to Pleistocene periglacial erosion in a sandstone headwater valley, central Pennsylvania. 6th annual Amtrak (now Wolman) Club meeting, Penn State University

Mount, G., Guo, L., Comas, X., DiBiase, R., Hayes, J., **Del Vecchio, J.,** Forsythe, B., Brantley, S. and Lin, H. “Characterizing Subsurface Lithology and Hydrological Processes at the Susquehanna Shale Hills CZO Using Multi-scale Near-surface Geophysical Measurements.” 2016 AGU Fall Meeting, San Francisco, CA 14-18 Dec.

Del Vecchio, J., Denn, A., DiBiase, R. and Bierman, P. “Colluvial signatures of Pleistocene sediment production in central Pennsylvania.” AGU, San Francisco, CA 14- 18 Dec.

+**Del Vecchio, J.,** Martin, C.*, Mount, G., Hayes, J., Comas, X. “Surface and subsurface characteristics of periglacial landscape modification in central Appalachia.” 2016 GSA Annual Meeting, Denver, CO, 25-28 Sept

Silverhart, P.*, Zhi, W., Xiao, D., **Del Vecchio, J.,** DiBiase, R. and Li, L. “Evaluating the importance of regolith heterogeneity on catchment hydrology in Garner Run, Susquehanna Shale Hills Critical Zone Observatory, Pennsylvania, USA.” 2016 GSA Annual Meeting, Denver, CO, 25-28 Sept.

DiBiase, R.A., **Del Vecchio, J.,** and Granke, S. B*. “Topographic and colluvial signatures of lithology, base level, and climate in the Shavers Creek Watershed, Pennsylvania.” Pardee Symposium, 2015 GSA Annual Meeting, Baltimore, MD, 1-4 Nov.

Del Vecchio, J., Arrowsmith, J. R., Alfano, F., De Michieli Vitturi, M., Clarke, A., Pearthree, K., and Till, R. “Aspect-related differences in sediment transport rates on cinder cones, San Francisco Volcanic Field REU.” 2014 GSA Annual Meeting, Vancouver, Canada, 19-22 Oct.

*indicates student mentee author +indicates oral presentation

OTHER EXPERIENCES

Archaeology summer field school participant, University of Arizona

Undergraduate research assistant, Politics Department, Pomona College

Student employee, Career Development Office, Pomona College