

JOANMARIE DEL VECCHIO

Department of Geology, College of William & Mary

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EDUCATION

August 2021	Ph. D., The Pennsylvania State University, Geoscience
December 2017	M.S., The Pennsylvania State University, Geoscience
May 2015	B.A., Pomona College, Geology

APPOINTMENTS

Spring 2024-present	William and Mary , Assistant Professor of Geology
Fall 2021-Fall 2023	Dartmouth College , Postdoctoral Fellow, Neukom Institute for Computational Science
Summer 2019	Los Alamos National Laboratory , Office of Science Graduate Student Research (SCGSR) fellow

Narrative: I am a geomorphologist who develops field, remote sensing, and computational methods to study landscape response to climate and land use change. Using cross-disciplinary approaches, I quantify the climatic and geologic conditions influencing topographic and ecological dynamics in past and present permafrost landscapes. Sometimes this involves studying landscape from across a modern or ancient climate gradient; other times I use remotely sensed time series data or stratigraphic evidence to track change in a single place as climate changed around it. Both approaches incorporate large, complex datasets and/or calculated landscape metrics to describe and compare landscapes, an approach I refer to as “computational geomorphology.” By pairing computational analyses with field measurements of the thermal, hydrologic, and geologic properties of landscapes, I have generated novel, interdisciplinary insights into permafrost landscape dynamics, as well as the dynamics of other evolving landscape systems. I include students in all aspects of this work, and I find providing such wide-ranging and interdisciplinary undergraduate research experiences for students of all interests in the department a rewarding endeavor.

HONORS AND AWARDS

2020	Marie Morisawa Award, Quaternary Geology and Geomorphology Division, GSA
2019	Wiley (now Mike Kirkby) Award, British Society of Geomorphology

Professional service and synergistic activities

Program Committee, Earth and Planetary Surface Processes Section, AGU (2024-present)
Session convener, “Changing Permafrost Landscapes” AGU Fall Meeting in Washington, DC (2024)
Webinar, “Bringing Coding Activities into your Undergraduate Earth Science Classroom: Scalable and Reproducible Analysis for All!”, National Association of Geoscience Teachers (2024)
Reviewer: *EGUSphere*, *Geology*, *Geophysical Research Letters*, *Nature Communications*, *Earth Surface Processes and Landforms*

Publications

[11] Warburton., K., **Del Vecchio, J.** Palucis, M. Meyer, C. (accepted at *Water Resources Research*)
Permafrost thaw patterning through thermal channelization
[10] **Del Vecchio, J.**, Shefelton, K., & DiBiase, R. A. (2025). Pleistocene smoothing and resurfacing of Appalachian ridgelines by periglaciation. *Geophysical Research Letters*, 52, e2025GL119259.
<https://doi.org/10.1029/2025GL119259>
[9] **Del Vecchio, J.**, & Evans, S. G. (2025). Climate and hydrogeological controls on water tracks in permafrost landscapes. *Reviews of Geophysics*, 63, e2024RG000854. <https://doi.org/10.1029/2024RG000854>
[8] Landis, J.D., ... **Del Vecchio, J.**, et al, (2024). Quantifying soil accumulation of atmospheric mercury using fallout radionuclide chronometry. *Nature Communications*, 15(1), p.5430.

- [7] **Del Vecchio, J.**, Palucis, M.C. and Meyer, C.R., (2024). Permafrost extent sets drainage density in the Arctic. *Proceedings of the National Academy of Sciences*, 121(6), p.e2307072120.
- [6] **Del Vecchio, J.**, Sarah J. Ivory, Gregory J. Mount, Matthew Leddy, and Roman A. DiBiase. "Hillslope and vegetation response to postglacial warming at Bear Meadows Bog, Pennsylvania, USA." *Quaternary Research* 117 (2024): 79-97.doi:10.1017/qua.2023.60
- [5] **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
- [4] **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
- [3] **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
- [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